SHB101 Series
Intel® Core™ 2 Quad/Core™ 2 Duo
Celeron® Processor
PICMG 1.3 Full-Size
Single Board Computer
User's Manual

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ESD Precautions

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before holding the board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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MEMO

CHAPTER 1
INTRODUCTION

The **SHB101** PICMG 1.3 full-size Single Board Computer supports LGA775 socket for Intel® Core™ 2 Quad / Core™ 2 Duo/Celeron® processors with 45/65nm technology and FSB 800/1066/1333 MHz. The board integrates Intel® Q35 and ICH9R chipset that delivers outstanding system performance through high-bandwidth interfaces, multiple I/O functions for interactive applications and various embedded computing solutions. There are four 240-pin DDR2 DIMM sockets for dual channel DDR2 667/800, maximum memory capacity up to 8GB. The board also features dual Gigabit Ethernet, six serial ATA ports at maximum transfer rate up to 3Gbs, and SATA RAID 0/1/5/10 by ICH9R. Ten USB 2.0 high speed compliant ports and built-in Intel® HD Audio Digital Header (optional) can achieve the best stability and reliability for industrial applications.

1.1 Specifications

- **CPU**
  - **Intel® Core™ 2 Quad / Core™ 2 Duo/Celeron® processors**
- **System Chipset**
  - **Intel® Q35 and ICH9R**
- **CPU Socket**
  - **LGA775 Socket**
- **Front-Side Bus**
  - **800/1066/1333 MHz**
- **BIOS**
  - Phoenix-Award BIOS via SPI interface with socket
- **System Memory**
  - Four 240-pin DDR2 DIMM sockets
  - Maximum up to 8GB DDR2 memory
  - Support DDR2 667/800 memory
- **L2 Cache:** integrated in CPU
- **Onboard Multi-I/O**
  - Parallel Port: one 26-pin 2.54 pitch box-header, SPP/EPP/ECP supported
  - Serial Port: one for RS-232 (COM1) and one port for RS-232/422/485 (COM2)
  - Floppy controller: supports two drives (1.44MB for each)
- **USB Interface**
  - Ten USB ports compliant with USB Spec. Rev. 2.0 (Six ports on SHB101, four ports to SHB connector-C golden fingers)
- **VGA Controller**
  - Chipset -- Intel® integrated Graphics Gen3.5 on Intel® Q35 supports 3D, 2D, video capabilities
  - Memory Size -- Intel® DVMT 128/256MB supported;

preallocated memory for frame buffer option as 8MB

- Resolution -- Analog output -- the analog port utilizes an integrated 350MHz 24-bit RAMDAC that can directly drive a standard progressive scan analog monitor up to a resolution of 2048x1536 pixels with 32-bit color at 75 Hz
- Analog Output Interface -- CRT from DAC output via 15-pin D-Sub connector on the edge; CRT always ON supported

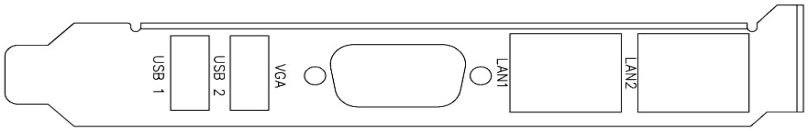
- **Ethernet**
  - The LAN1/LAN2 is 82573L Ethernet controller support 10/100/1000 Mb/s
  - Dual PCI-Express x1 LAN
- **Serial ATA**
  - Support Serial ATA/Serial ATA II
  - Six Serial ATA-II ports, 3GB/s performance and SATA RAID 0/1/5/10 by ICH9R
- **Audio**
  - 16-pin 2.54 pin-header (Intel® HD Audio Digital Header) (optional)
- **Hardware Monitoring**
  - Monitoring temperatures, voltages, and cooling fan status
- **Watchdog Timer**
  - Reset Supported (1-255 level)
- **Dimensions**
  - 338mm x 126mm

NOTE *All specifications and images are subject to change without notice.*

1.2 Utilities Supported

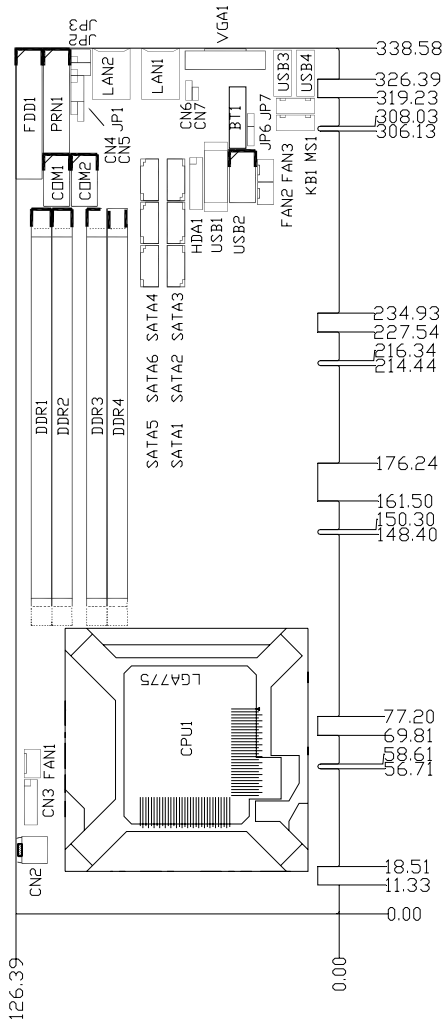
- Intel® Q35 Utility and Drivers
- VGA Drivers
- Ethernet Utility and Drivers
- RAID Utility

1.3 I/O Bracket

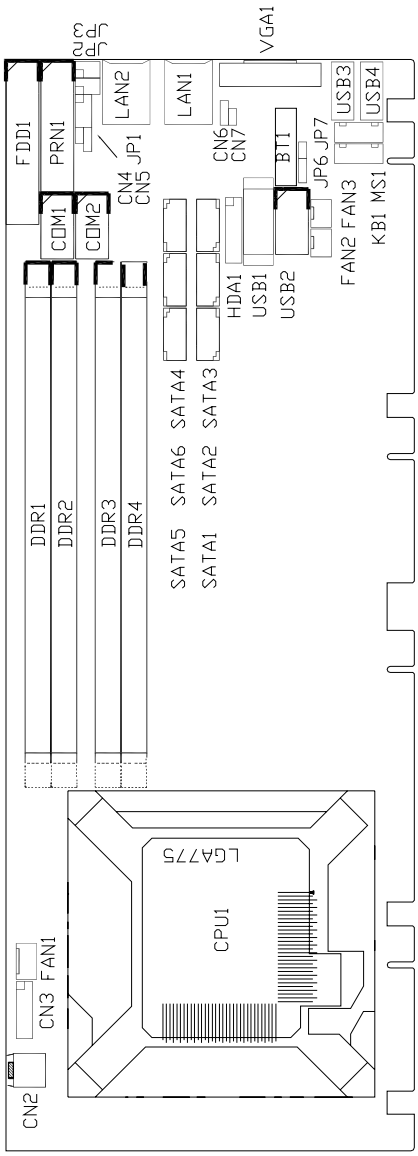


CHAPTER 2
JUMPERS AND CONNECTORS

2.1 Board Dimensions



2.2 Board Layout

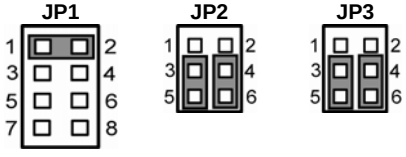
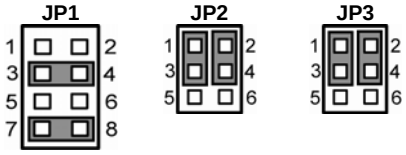
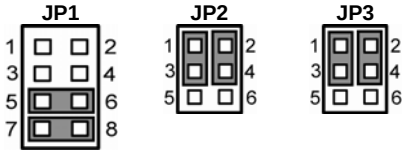


2.3 Jumper Settings

Proper jumer settings configure the **SHB101** to meet your application purpose.

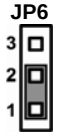
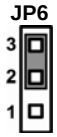
2.3.1 COM2 Mode Select Jumpers for RS-232/422/485 (JP1, JP2, JP3)

These jumpers select the COM2 port's communication mode to operate RS-232 or RS-422/485.

Description	Function	Jumper Setting
COM2	RS-232 (Default)	
	RS-422	
	RS-485	

2.3.2 CMOS Clear Jumper (JP6)

You may need to use this jumper is to clear the CMOS memory if incorrect BIOS settings.

Description	Function	Jumper Setting
CMOS Clear	Normal (Default)	
	Clear CMOS	

2.3.3 ATX Auto Power On/Off (JP7)

When Jumper JP7 is set OPEN for AC power input, the system will be automatically power ON without pressing soft power button; when JP7 is SHORT for AC power input, it is necessary to manually press soft power button to make the system power ON.

Note *This function is similar to the feature of Power On after Power Failed, which is controlled by hardware circuitry instead of BIOS.*

Description	Function	Jumper Setting
ATX Auto Power On/Off	Disable (Default)	
	Enable	

2.4 Connectors

Connectors connect this board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected.

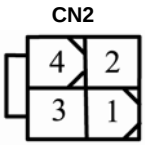
Here is a summary table shows you all connectors on the board.

Connector	Label	Connector	Label
ATX 4 Pin 12V In	CN2	Floppy Connector	FDD1
Front Panel Connector	CN3	Parallel Port	PRN1
LAN2 Link / Active LED	CN4	Serial ATA Connectors	SATA1~6
LAN2 Speed LED	CN5	USB Connector	USB1~4
LAN1 Speed LED	CN6	DB15 CRT Connector	VGA1
LAN1 Link / Active LED	CN7	DDRII DIMM Sockets	DDR1~4
Serial Port1 Connector	COM1	PS/2 Mouse Connector	MS1
Serial Port2 Connector	COM2	PS/2 Keyboard Connector	KB1
CPU FAN Connector	FAN1	Intel HD Audio Digital Header (optional)	HDA1
System FAN Connector	FAN2	LAN1 Connector	LAN1
System FAN Connector	FAN3	LAN2 Connector	LAN2

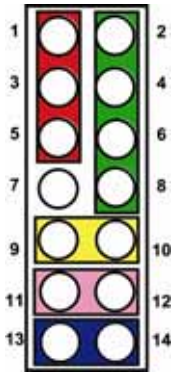
2.4.1 ATX 4 Pin 12V In Connector (CN2)

You can connect it to the ATX12V power supply for CPU Core Voltage.

Pin	Signal
1	GND
2	GND
3	+12V
4	+12V



2.4.2 Front Panel Connector (CN3)



- **Power LED**

  This 3-pin connector denoted as Pin 1 and Pin 5 connects the system power LED indicator to such a switch on the case. Pin 1 is assigned as +, and Pin 5 as -. The Power LED lights up when the system is powered ON. Pin 3 is defined as GND.

- **External Speaker and Internal Buzzer Connector**

  Pin 2, 4, 6 and 8 can be connected to the case-mounted speaker unit or internal buzzer. While connecting the CPU card to an internal buzzer, please short pins 2-4; while connecting to an external speaker, you need to set pins 2-4 to Open and connect the speaker cable to pin 8 (+) and pin 2 (-).

- **ATX Power On/Off Button**

  This 2-pin connector denoted as Pin 9 and 10 connects the front panel's ATX power button to the CPU card, which allows users to

control ATX power supply to be power on/off.

- **System Reset Switch**
  Pin 11 and 12 can be connected to the case-mounted reset switch that reboots your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

- **HDD Activity LED**
  This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. Pin 13 and 14 connect the hard disk drive to the front panel HDD LED, Pin 13 assigned as -, and Pin 14 as +.

2.4.3 LAN1, LAN2 Link/Active LED Connectors (CN4, CN7)

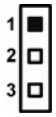
Pin	Signal
1	LED (+)
2	LED (-)

CN4, CN7

2.4.4 LAN1, LAN2 Speed LED Connectors (CN5, CN6)

Pin	Signal
1	100, Low Active
2	+ 3.3V
3	1000, Low Active

CN5, CN6

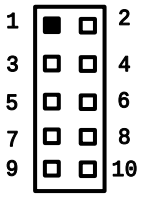


2.4.5 COM Port RS-232 Pin Assignment (COM1, COM2)

The serial interface for the board consists of COM1 port (COM1) support for RS-232, and COM2 (COM2) for RS-232/RS422/RS485.

Pin	Signal	Pin	Signal
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	Ground (GND)

COM1, COM2



2.4.6 COM2 RS-422/485 Pin Assignment

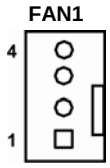
COM2 Serial Port 10-pin (Box-header) Connector Pin Assignment list

Pin #	Signal Name	
	RS-422	RS-485
1	TX-	DATA-
2	No connector	No connector
3	TX+	DATA+
4	No connector	No connector
5	RX+	No connector
6	No connector	No connector
7	RX-	No connector
8	No connector	No connector
9	GND	GND
10	GND	GND

2.4.7 CPU Fan Connector (FAN1)

A CPU fan is always needed for cooling CPU heat. The CPU fan connector **FAN1** provides power to the CPU fan.

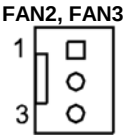
Pin	Signal
1	Ground
2	+12V
3	Rotation Detection
4	Speed Control



2.4.8 System Fan Connectors (FAN2, FAN3)

You can connect the system cooling fan cable to **FAN2/FAN3** for system cooling fan power.

Pin	Signal
1	GND
2	+12V
3	Rotation Detection



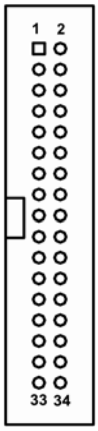
2.4.9 Floppy Disk Port Connector (FDD1)

The board provides a 34-pin header type connector, **FDD1**, supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	Drive Density Select	3	GND
4	No connector	5	GND	6	No connector
7	GND	8	Index#	9	GND
10	Motor enable A#	11	GND	12	No connector
13	GND	14	Drive select A#	15	GND
16	No connector	17	GND	18	Direction#
19	GND	20	STEP#	21	GND
22	Write data#	23	GND	24	Write gate#
25	GND	26	Track 0 #	27	GND

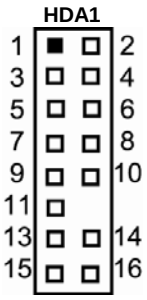
Pin	Signal	Pin	Signal	Pin	Signal
28	Write protect#	29	No connector	30	Read data#
31	GND	32	Head selection#	33	No connector
34	Disk change#				

FDD1



2.4.10 Intel® HD Audio Digital Header (HDA1) (optional)

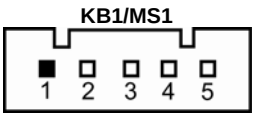
Pin	Signal	Pin	Signal
1	BCLK	2	GND
3	RST#	4	VCC3
5	SYNC	6	GND
7	SDOUT	8	VCC3
9	SDI0	10	+12V
11	No connector		
13	No connector	14	3VDUAL
15	No connector	16	GND



2.4.11 PS/2 Keyboard, Mouse Connector (KB1, MS1)

The board provides the Keyboard (KB1)/ Mouse (MS1) interface with a 5-pin connector.

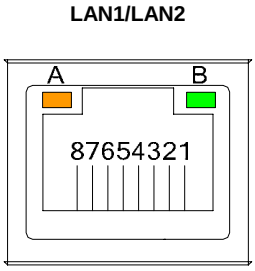
Pin	Signal
1	Clock
2	DATA
3	No connector
4	GND
5	VCC



2.4.12 Ethernet RJ-45 Connectors (LAN1/LAN2)

The RJ-45 connectors LAN1 and LAN2 are for Ethernet. To connect the board to 100-Base-T or 1000-Base-T hub, just plug one end of the cable into LAN1 and connect the other end (phone jack) to a 100-Base-T hub or 1000-Base-T hub.

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ-1(For 1000 base T-Only)
5	RJ-1(For 1000 base T-Only)
6	Rx- (Data reception negative)
7	RJ-1(For 1000 base T-Only)
8	RJ-1(For 1000 base T-Only)
A	Active LED
B	Speed LED



2.4.13 Parallel Port Connector (PRN1)

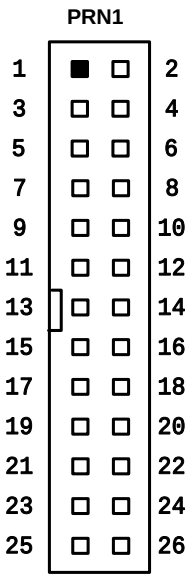
Print Port Connector [Default]
This board has a multi-mode parallel port to support:

1. **Standard Mode:**
   IBM PC/XT, PC/AT and PS/2™ are compatible with bi-directional parallel port.

2. **Enhanced Mode:**
   Enhance parallel port (EPP) is compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant).

3. **High Speed Mode:**
   Microsoft and Hewlett Packard extended capabilities port (ECP) is IEEE 1284 compliant.

Pin	Signal	Pin	Signal
1	Strobe#	2	Auto Form Feed#
3	Data 0	4	Error#
5	Data 1	6	Initialize#
7	Data 2	8	Printer Select In#
9	Data 3	10	GND
11	Data 4	12	GND
13	Data 5	14	GND
15	Data 6	16	GND
17	Data 7	18	GND
19	Acknowledge#	20	GND
21	Busy	22	GND
23	Paper Empty#	24	GND
25	Printer Select	26	GND



2.4.14 SATA Connectors (SATA1~6)

These SATA connectors are for high-speed SATA interface ports and they can be connected to hard disk devices.

Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

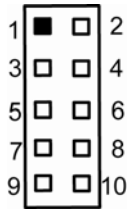
SATA1~6

2.4.15 USB Connectors (USB1/USB2)

The 10-pin standard Universal Serial Bus (USB) connectors, **USB1/2**, on this board are for installing versatile USB interface peripherals.

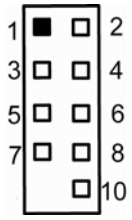
Pin	Signal	Pin	Signal
1	USB	2	USB
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
9	GND	10	GND

USB1



Pin	Signal	Pin	Signal
1	USB	2	USB
3	USB4-	4	USB5-
5	USB4+	6	USB5+
7	GND	8	GND
		10	GND

USB2



2.4.16 USB Port Connector (USB3/USB4)

The 4-pin standard Universal Serial Bus (USB) port connector on the board is for the installation of peripherals supporting the USB interface.

Pin	Signal
1	USB POWER
2	USB -
3	USB +
4	GND

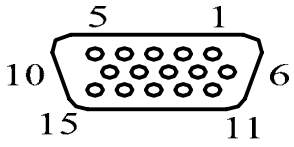
USB3/4

2.4.17 DB15 CRT Connector (VGA1)

VGA1 is a DB15 connector commonly used for the CRT Monitor.

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	NC	5	GND	6	DETECT
7	GND	8	GND	9	VCC
10	GND	11	NC	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

VGA1

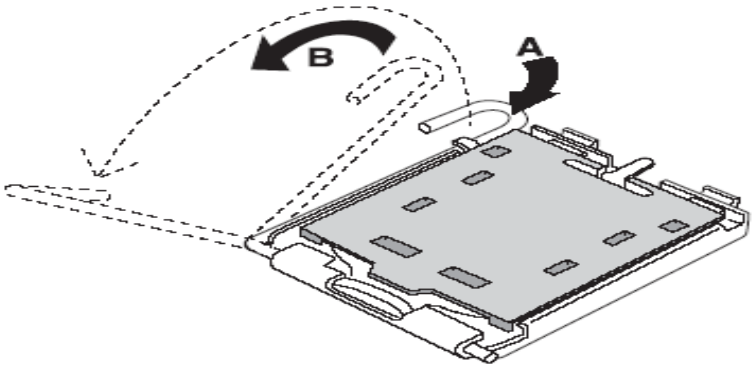


CHAPTER 3
HAREDWARE INSTALLATION

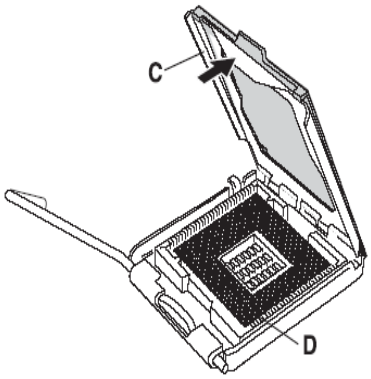
Before installing the processor, please access Intel® website for more detailed information http://www.intel.com .

3.1 Installing the Processor

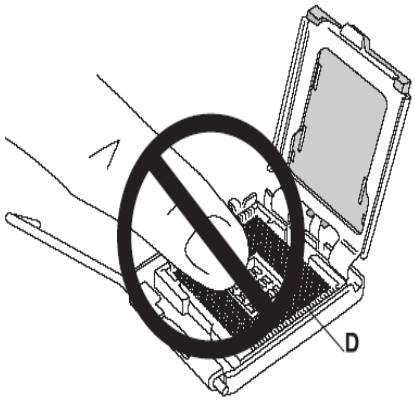
The LGA775 processor socket comes with a cover to protect the processor. Please install the processor into the CPU socket step by step as below:



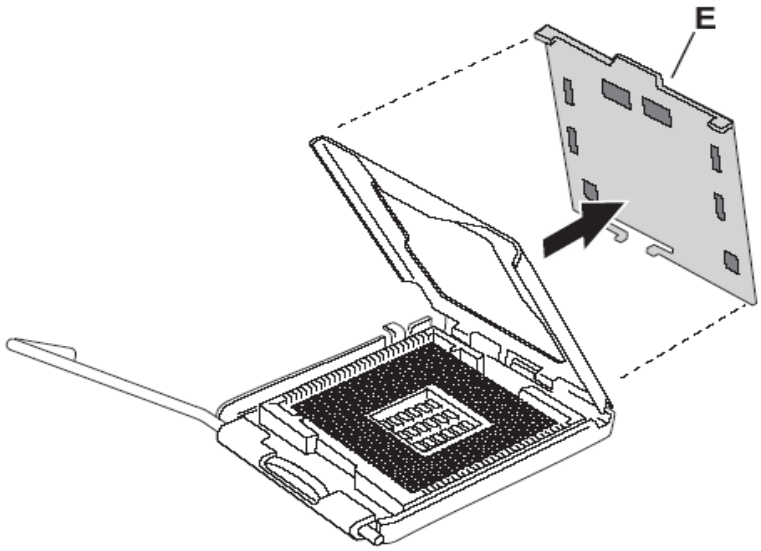
Hold the hook (A) of the lever and push it down.
Pull the lever (B) asisde to unlock the cover.



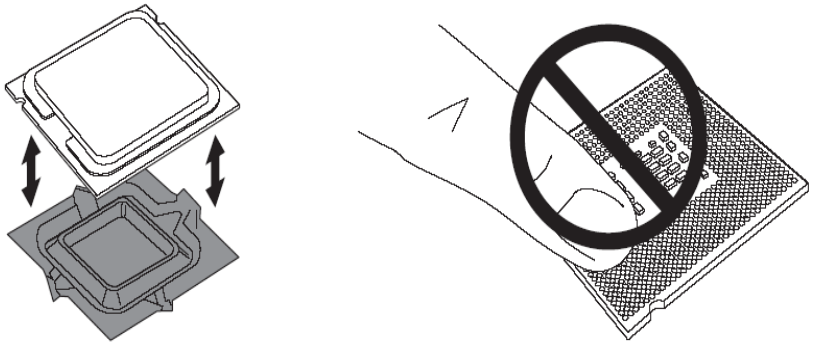
Open the cover (C), you can see the contact.



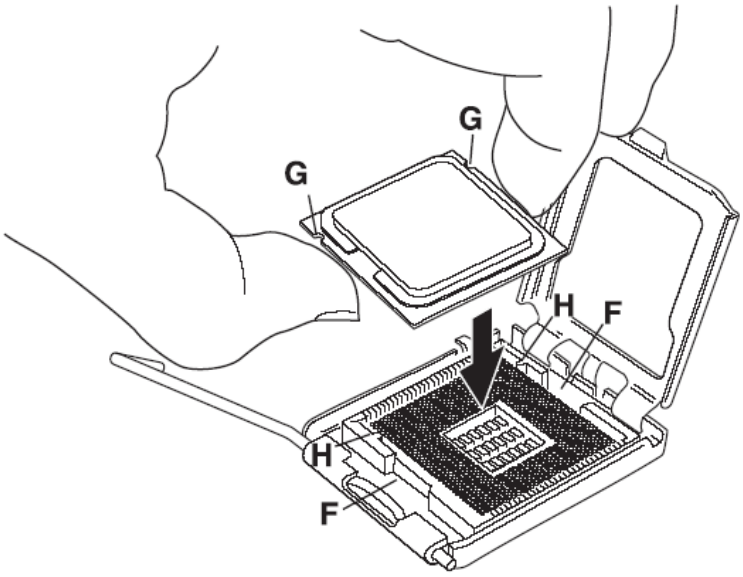
Be careful not to touch the contact (D).



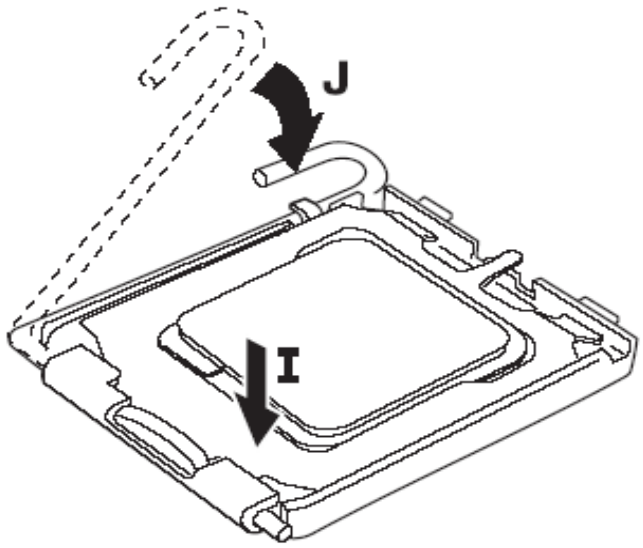
Remove the plastic cap (E) from the cover.



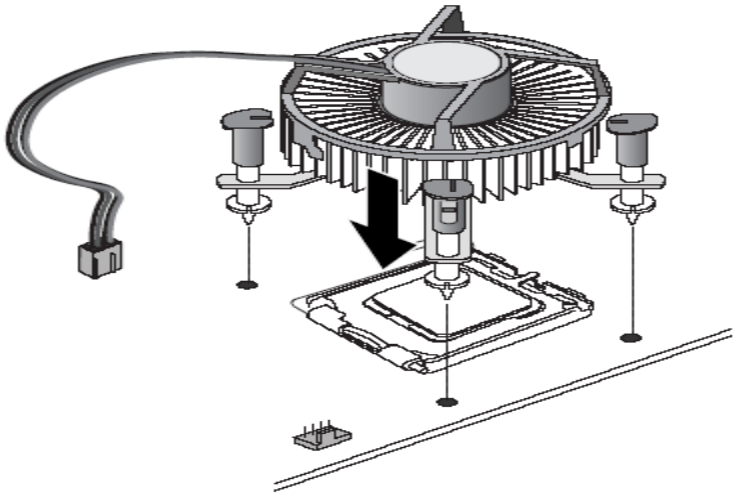
Place the CPU down into the socket. Be careful not to touch the contact.



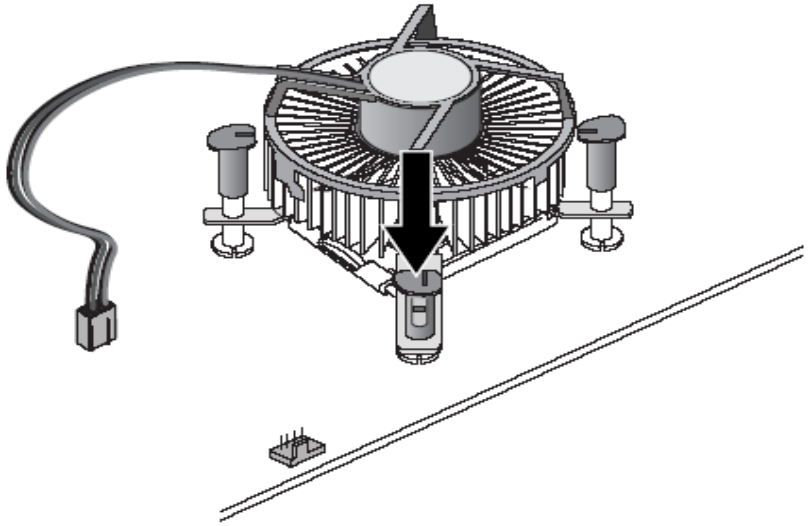
Hold the edges of the CPU, and orientate it as the marked direction (G) down into the socket to match the (H) and (F) locations.



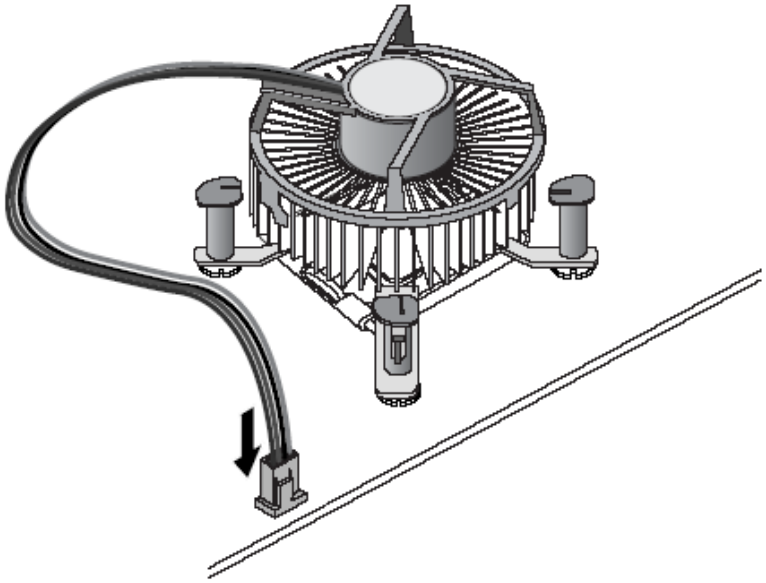
Slightly push down the cover and hook the lever (I~J). The CPU is completely locked.



Orientate the CPU cooling fan to fixing holes on the board.



Screw the CPU cooling fan onto the board.



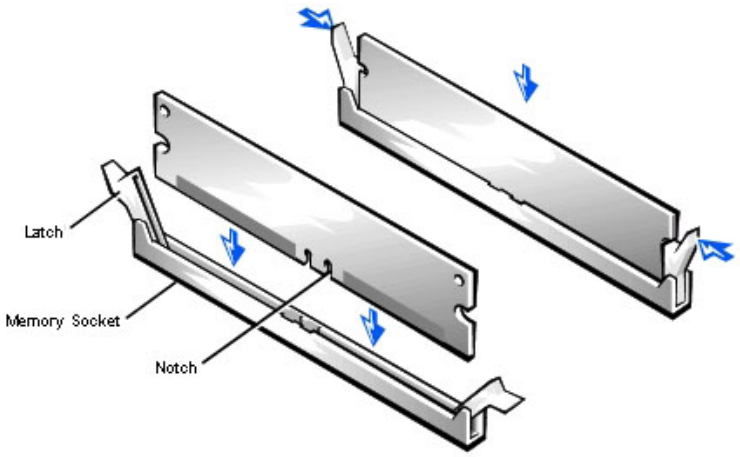
Make sure the CPU fan is plugged to the CPU fan connector.

3.2 Installing the Memory

The board supports four 240-pin DDR2 DIMM memory sockets with maximum memory capacity up to 8GB.

Please follow steps below to install the memory modules:

1 Push down latches on each side of the DIMM socket.
2 Align the memory module with the socket that notches of memory module must match the socket keys for a correct intallation.
3 Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the DIMM.
4 Install any remaining DIMM modules.



CHAPTER 4
HARDWARE DESCRIPTION

4.1 Microprocessors

The **SHB101 Series** supports Intel® Core™ 2 Quad / Core™ 2 Duo/Celeron® processors, which make your system operated under Windows® XP and Linux environments. The system performance depends on the microprocessor. Make sure all correct settings are arranged for your installed microprocessor to prevent the CPU from damages.

4.2 BIOS

The **SHB101 Series** uses Phoenix-Award Plug and Play BIOS with a single 8Mbit SPI Flash.

4.3 System Memory

The **SHB101 Series** supports four 240-pin DDR2 DIMM sockets for a maximum memory of 8GB DDR2 SDRAMs. The memory module can come in sizes of 64MB, 128MB, 256MB, 512MB, 1GB and 2GB.

4.4 I/O Port Address Map

The Intel® Core™ 2 Quad / Core™ 2 Duo/Celeron® CPUs can communicate via I/O ports. There are total 1KB port addresses available for assignment to other devices via I/O expansion cards.

Address	Devices
000-01F	DMA controller #1
020-02D 024-025 028-029 02C-02D	Interrupt controller #1
02E-02F	Forwarded to LPC(LPC Super I/O)
030-031 034-035 038-039 03C-03D	Interrupt controller #2
040-043 050-053	Timer/Counter (8254)
060	Forwarded to LPC (Microcontroller)
061	NMI
062-066	Forwarded to LPC (Microcontroller)
070-077	Real time clock, NMI
080-091	DMA page register
092	Processor I/F(Reset Generator)
093-09F	DMA page register
0A0-0BF	Interrupt controller #2
0C0-0DF	DMA controller #2
0F0	Processor I/F
0F8-0FF	Math processor
170-177	Forward to SATA (SATA Controller)
1F0-1F7	Forward to SATA (SATA Controller)
376	Forward to SATA(SATA Controller)
378-37F	Parallel Port (LPT)
380-38F	SDLC #2
3A0-3AF	SDLC #1
3B0-3BF	MDA video card

(to be continued)

Address	Devices
3C0-3CF	EGA card
3D0-3DF	CGA card
3F6	Forward to SATA(SATA Controller)
3F8-3FF	Serial port #1 (COM1)
2F8-2FF	Serial port #2 (COM2)

4.5 Interrupt Controller (IRQ) Map

The **SHB101 Series** is a 100% PC compatible control board. It consists of 16 interrupt request lines, and four out of them can be programmable. The mapping list of the 16 interrupt request lines is shown as the following table.

IRQ	Parity check error
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial port #2
IRQ4	Serial port #1
IRQ5	PCI Device Share
IRQ6	Floppy Disk Controller
IRQ7	Parallel port
IRQ8	Real time clock
IRQ9	ACPI Controller
IRQ10	PCI Device Share
IRQ11	PCI Device Share
IRQ12	PS/2 Mouse
IRQ13	Math coprocessor
IRQ14	SATA Primary (Legacy Mode)
IRQ15	SATA Secondary (Legacy Mode)

MEMO

CHAPTER 5
PHOENIX-AWARD BIOS UTILITY

The Phoenix-Award BIOS provides users with a built-in Setup program to modify basic system configuration. All configured parameters are stored in a battery-backed-up RAM (CMOS RAM) to save the Setup information whenever the power is turned off.

5.1 Entering Setup

There are two ways to enter the Setup program. You may either turn ON the computer and press <Del> immediately, or press the <Del> and/or <Ctrl>, <Alt>, and <Esc> keys simultaneously when the following message appears at the bottom of the screen during POST (Power on Self Test).

TO ENTER SETUP PRESS DEL KEY

If the message disappears before you respond and you still want to enter Setup, please restart the system to try it again. Turning the system power OFF and ON, pressing the "RESET" button on the system case or simultaneously pressing <Ctrl>, <Alt>, and <Del> keys can restart the system. If you do not press keys at the right time and the system doesn't boot, an error message will pop out to prompt you the following information:

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

5.2 Control Keys

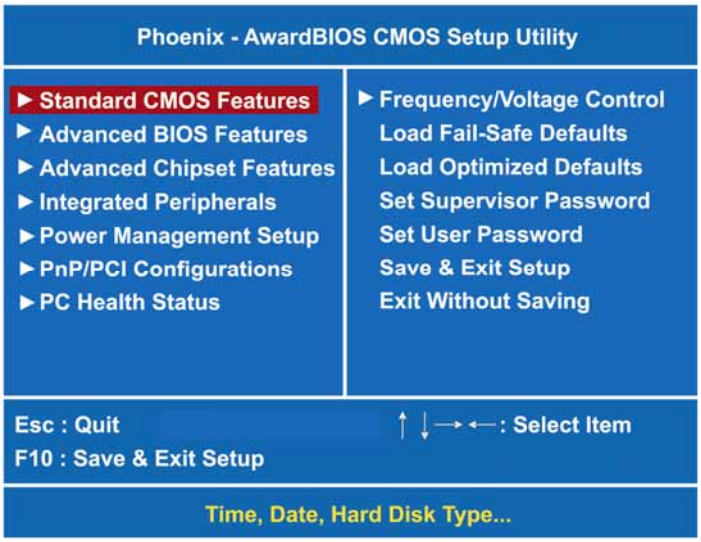
Up arrow	Move cursor to the previous item
Down arrow	Move cursor to the next item
Left arrow	Move cursor to the item on the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and delete changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp/"+" key	Increase the numeric value or make changes
PgDn/"–" key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the Setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

5.3 Getting Help

- **Main Menu**
  The online description of the highlighted setup function is displayed at the bottom of the screen.
- **Status Page Setup Menu/Option Page Setup Menu**
  Press <F1> to pop out a small Help window that provides the description of using appropriate keys and possible selections for highlighted items. Press <F1> or <Esc> to exit the Help Window.

5.4 The Main Menu

Once you enter the Phoenix-Award BIOS CMOS Setup Utility, the Main Menu appears on the screen. In the Main Menu, there are several Setup functions and a couple of Exit options for your selection. Use arrow keys to select the Setup Page you intend to configure then press <Enter> to accept or enter its sub-menu.

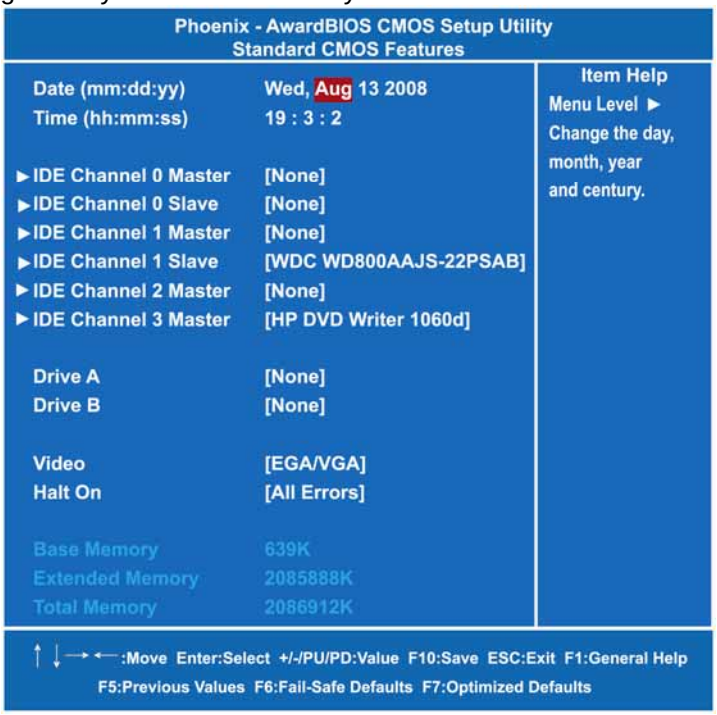


NOTE *If your computer can not boot after making and saving system changes with Setup, the Award BIOS will reset your system to the CMOS default settings via its built-in override feature.*

It is strongly recommended that you should avoid changing the chipset's defaults. Both Award and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

5.5 Standard CMOS Setup Menu

The Standard CMOS Setup Menu displays basic information about your system. Use arrow keys to highlight each item, and use <PgUp> or <PgDn> key to select the value you want in each item.


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Item Help
Menu Level ►
Change the day, month, year and century.
Date (mm:dd:yy) Wed, Aug 13 2008
Time (hh:mm:ss) 19 : 3 : 2
►IDE Channel 0 Master [None]
►IDE Channel 0 Slave [None]
►IDE Channel 1 Master [None]
►IDE Channel 1 Slave [WDC WD800AAJS-22PSAB]
►IDE Channel 2 Master [None]
►IDE Channel 3 Master [HP DVD Writer 1060d]
Drive A [None]
Drive B [None]
Video [EGA/VGA]
Halt On [All Errors]
Base Memory 639K
Extended Memory 2085888K
Total Memory 2086912K
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Date**
  The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	It is determined by the BIOS and read only, from Sunday to Saturday.
date	It can be keyed with the numerical/ function key, from 1 to 31.
month	It is from January to December.
year	It shows the current year of BIOS.

- **Time**
  This item shows current time of your system with the format <hour> <minute> <second>. The time is calculated based on the 24-hour

military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Channel 0/1/2/3 Master/IDE Channel 0/1 Slave**
  These items identify the types of each IDE channel installed in the computer. There are 45 predefined types (Type 1 to Type 45) and 2 user's definable types (Type User) for Enhanced IDE BIOS. Press <PgUp>/<+> or <PgDn>/<–> to select a numbered hard disk type, or directly type the number and press <Enter>. Please be noted your drive's specifications must match the drive table. The hard disk will not work properly if you enter improper information. If your hard disk drive type does not match or is not listed, you can use Type User to manually define your own drive type.
  If selecting Type User, you will be asked to enter related information in the following items. Directly key in the information and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
  If the HDD interface controller supports ESDI, select "Type 1".
  If the HDD interface controller supports SCSI, select "None".
  If the HDD interface controller supports CD-ROM, select "None".

CYLS.	number of cylinders	**LANDZONE**	landing zone
HEADS	number of heads	**SECTORS**	number of sectors
PRECOMP	write precom	**MODE**	HDD access mode

  If there is no hard disk drive installed, select NONE and press <Enter>.

- **Dive A /Drive B**
  The item identifies the types of floppy disk installed in the computer, as drive A or drive B.

None	No floppy drive installed
360K, 3.5 in	3.5 inch PC-type standard drive; 360Kb Mini ITXcity
1.2M, 3.5 in	3.5 inch AT-type high-density drive; 1.2MB Mini ITXcity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb Mini ITXcity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB Mini ITXcity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB Mini ITXcity

- **Video**
  Select the display adapter type for your system.

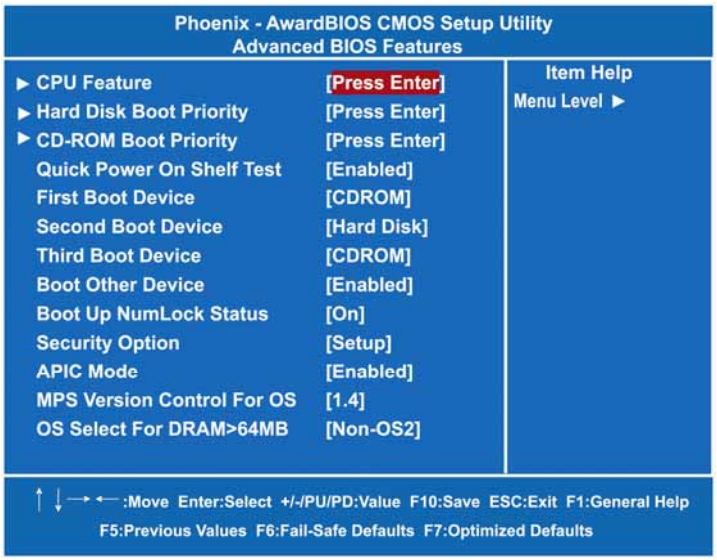
- **Halt On**
  This item determines whether the system will halt or not, if an error is detected while powering up.

No errors	The system booting will halt on any errors detected. (default)
All errors	Whenever BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system booting will not stop for a keyboard error; it will stop for other errors.
All, But Diskette	The system booting will not stop for a disk error; it will stop for other errors.
All, But Disk/Key	The system booting will not stop for a keyboard or disk error; it will stop for other errors.

Press <Esc> to return to the Main Menu page.

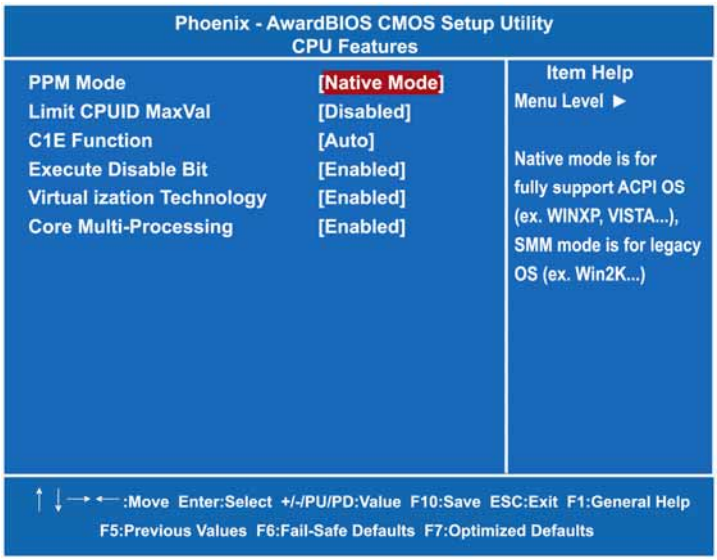
5.6 Advanced BIOS Features

This section allows you to configure and improve your system, to set up some system features according to your preference.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
▶ CPU Feature [Press Enter]
▶ Hard Disk Boot Priority [Press Enter]
▶ CD-ROM Boot Priority [Press Enter]
Quick Power On Shelf Test [Enabled]
First Boot Device [CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [CDROM]
Boot Other Device [Enabled]
Boot Up NumLock Status [On]
Security Option [Setup]
APIC Mode [Enabled]
MPS Version Control For OS [1.4]
OS Select For DRAM>64MB [Non-OS2]
Item Help
Menu Level ▶
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **CPU Feature**

  Scroll to this item and press <Enter> to view the CPU Feature sub menu.

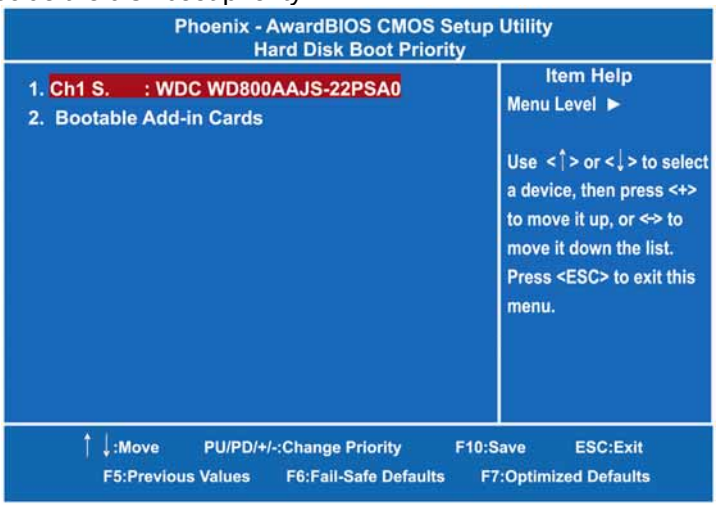

Phoenix - AwardBIOS CMOS Setup Utility
CPU Features
PPM Mode [Native Mode]
Limit CPUID MaxVal [Disabled]
C1E Function [Auto]
Execute Disable Bit [Enabled]
Virtual ization Technology [Enabled]
Core Multi-Processing [Enabled]
Item Help
Menu Level ►
Native mode is for fully support ACPI OS (ex. WINXP, VISTA...), SMM mode is for legacy OS (ex. Win2K...)
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

  - **Limit CPUID MaxVal**
    The CPUID instruction if some newer CPUs will return a value greater than 3. The default is "*Disabled*", because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, you can enable this field to limit the return value to 3 or lesser than 3.

Press <Esc> to return to the Advanced BIOS Features page.

- **Hard Disk Boot Priority**

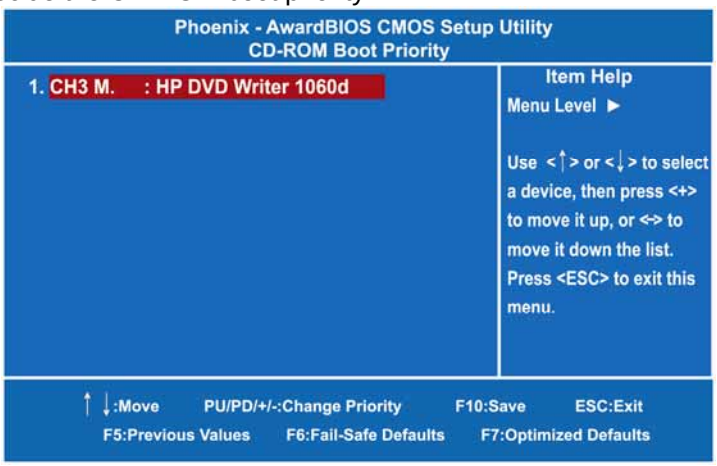
  Scroll to this item and press <Enter> to view the sub menu to decide the disk boot priority.


Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority
1. Ch1 S. : WDC WD800AAJS-22PSA0
2. Bootable Add-in Cards
Item Help
Menu Level ►
Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑ ↓:Move
PU/PD/+/-:Change Priority
F10:Save
ESC:Exit
F5:Previous Values
F6:Fail-Safe Defaults
F7:Optimized Defaults

Press <Esc> to return to the Advanced BIOS Features page.

- **CD-ROM Boot Priority**

  Scroll to this item and press <Enter> to view the sub menu to decide the CD-ROM boot priority.


Phoenix - AwardBIOS CMOS Setup Utility
CD-ROM Boot Priority
1. CH3 M. : HP DVD Writer 1060d
Item Help
Menu Level ►
Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑ ↓:Move
PU/PD/+/-:Change Priority
F10:Save
ESC:Exit
F5:Previous Values
F6:Fail-Safe Defaults
F7:Optimized Defaults

Press <Esc> to return to the Advanced BIOS Features page.

- **Quick Power On Self Test**
  This option speeds up Power on Self Test (POST) after you turn on the system power. If set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is *"Enabled"*.

Enabled	Enable Quick POST
Disabled	Normal POST

- **First/Second/Third Boot Device**
  These items let you select the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, and CDROM.
- **Boot Other Device**
  This item allows users to enable or disable the boot device not listed in the First/Second/Third boot devices option above. The default setting is "*Enabled"*.

- **Boot Up NumLock Status**
  Set the the Num Lock status when the system is powered on. The default value is "On".
- **Security Option**
  This item allows you to limit access to the system and Setup, or just to Setup. The default value is *"Setup"*.

System	If a wrong password is entered at the prompt, the system will not boot, the access to Setup will be denied, either.
Setup	If a wrong password is entered at the prompt, the system will boot, but the access to Setup will be denied.

NOTE *To disable the security, select PASSWORD SETTING at Main Menu and then you will be asked to enter a password. Do not type anything, just press <Enter> and it will disable the security. Once the security is disabled, the system will boot and you can enter Setup freely.*

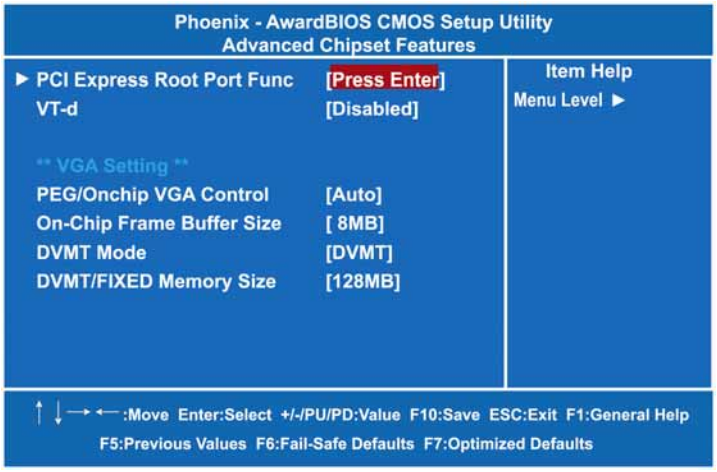
- **APIC Mode**
  Use this item to enable or disable APIC (Advanced Programmable Interrupt Controller) mode that provides symmetric multi-processing (SMP) for systems.

- **MPS Version Control For OS**
  This item specifies the version of the Multiprocessor Specification (MPS). Version 1.4 has extended configuration tables to improve support for multiple PCI bus configurations and provide future expandability.
- **OS Select for DRAM >64MB**
  This item allows you to access the memory over 64MB in OS/2.

Press <Esc> to return to the Main Menu page.

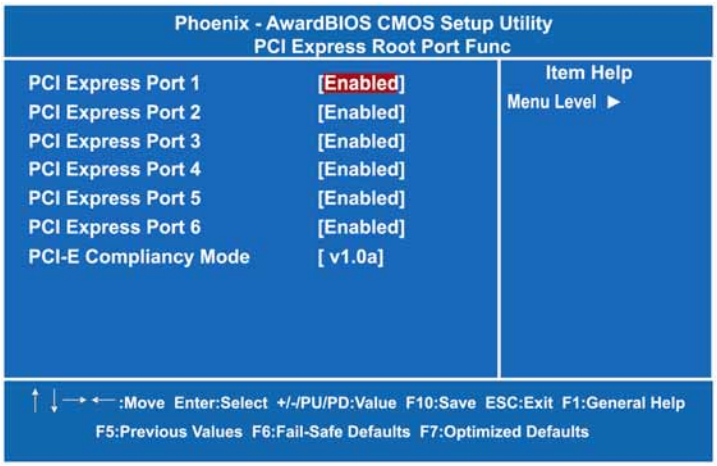
5.7 Advanced Chipset Features

This section contains completely optimized chipset's features on the board that you are strongly recommended to leave all items on this page at their default values unless you are very familiar with the technical specifications of your system hardware.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
▶ PCI Express Root Port Func [Press Enter]
VT-d [Disabled]
** VGA Setting **
PEG/Onchip VGA Control [Auto]
On-Chip Frame Buffer Size [8MB]
DVMT Mode [DVMT]
DVMT/FIXED Memory Size [128MB]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **PCI Express Root Port Func.**

  Scroll to this item and press <Enter> to view the sub menu to decide the PCI Express Port.


Phoenix - AwardBIOS CMOS Setup Utility
PCI Express Root Port Func
PCI Express Port 1 [Enabled]
PCI Express Port 2 [Enabled]
PCI Express Port 3 [Enabled]
PCI Express Port 4 [Enabled]
PCI Express Port 5 [Enabled]
PCI Express Port 6 [Enabled]
PCI-E Compliancy Mode [v1.0a]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Press <Esc> to return to the Advanced Chipset Features page.

- **VT-d**
  Use this item to enable or disable the VT-d to support the remapping of I/O DMA transfers and device-generated interrupts.

**** VGA Setting ****

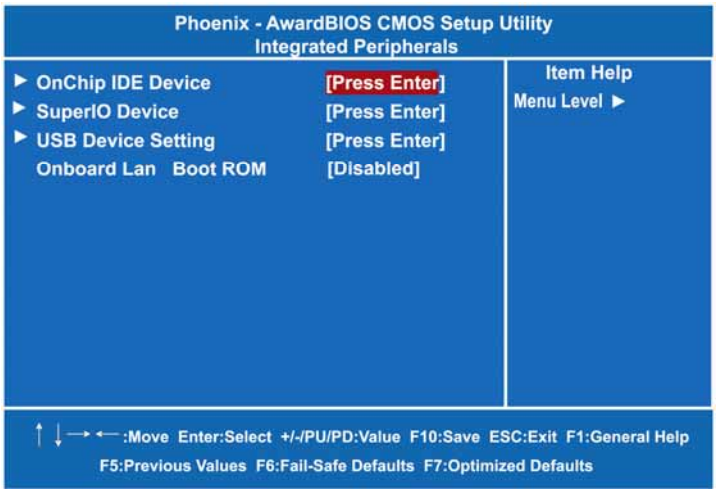
- **PEG/Onchip VGA Control**
  This setting allows you to select whether to use the onchip graphics processor or the PCI Express card. When set to [Auto], the BIOS will check if a PCI Express graphics card is installed or not. If a PCI Express graphics card is detected, the board will boot up using that card. Otherwise, it is defaulted to the onchip graphics processor.
- **On-Chip Frame Buffer Size**

  Use this item to set the VGA frame buffer size.
- **DVMT Mode**
  DVMT (Dynamic Video Memory Technology) helps you select the video mode.
- **DVMT/Fixed Memory Size**
  DVMT (Dynamic Video Memory Technology) allows you to select a maximum size of dynamic amount usage of the video memory. The system would configure the video memory dependent on your application.

Press <Esc> to return to the Main Menu page.

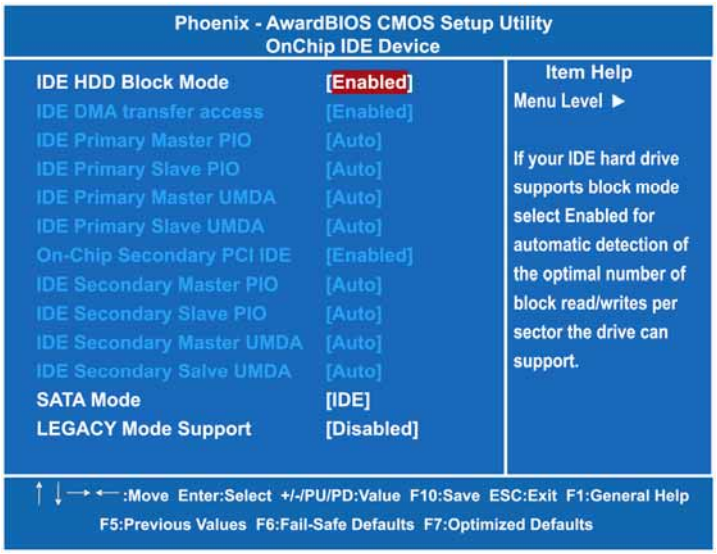
5.8 Integrated Peripherals

This section allows you to configure your SuperIO Device, IDE Function and Onboard Device.


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
OnChip IDE Device [Press Enter]
SuperIO Device [Press Enter]
USB Device Setting [Press Enter]
Onboard Lan Boot ROM [Disabled]
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **OnChip IDE Device**

  Scroll to this item and press <Enter> to view the sub menu OnChip IDE Device.

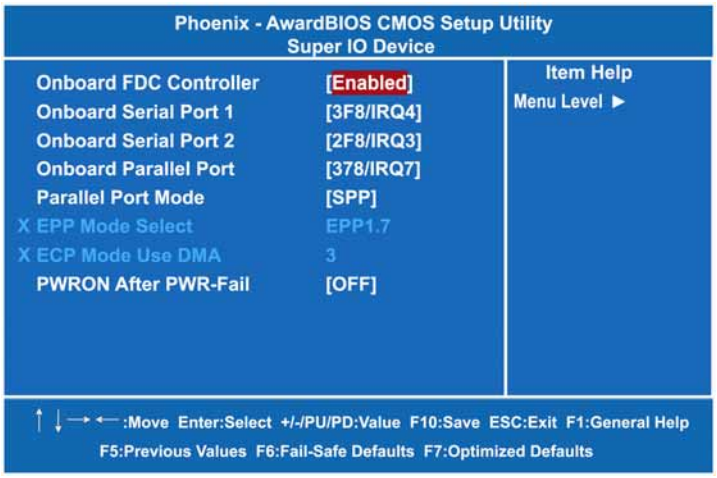

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device
IDE HDD Block Mode [Enabled]
IDE DMA transfer access [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Primary Master UMDA [Auto]
IDE Primary Slave UMDA [Auto]
On-Chip Secondary PCI IDE [Enabled]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Secondary Master UMDA [Auto]
IDE Secondary Salve UMDA [Auto]
SATA Mode [IDE]
LEGACY Mode Support [Disabled]
Item Help
Menu Level ►
If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **IDE HDD Block Mode**
  Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
- **IDE DMA transfer access**
  Automatic data transfer between system memory and IDE device with minimum CPU intervention. This improves data throughput and frees CPU to perform other tasks.
- **IDE Primary/Secondary Master/Slave PIO**
  The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 to 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
- **IDE Primary/Secondary Master/Slave UDMA**
  Select the mode of operation for the IDE drive. Ultra DMA-33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and system software both support Ultra DMA-33/66/100/133, select Auto to enable UDMA mode by BIOS.
- **SATA Mode**
  There are these options for you to set up SATA mode: IDE, RAID or AHCI.
- **LEGACY Mode Support**
  Legacy mode support allows devices to function in an operating environment that is not USB-aware.

Press <Esc> to return to the Integrated Peripherals page.

- **Super IO Device**

  Scroll to this item and press <Enter> to view the sub menu Super IO Device.


Phoenix - AwardBIOS CMOS Setup Utility
Super IO Device
Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
X EPP Mode Select EPP1.7
X ECP Mode Use DMA 3
PWRON After PWR-Fail [OFF]
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

  - **Onboard FDC Controller**
    Select Enabled, if your system has a floppy disk controller (FDC) installed on the system board and you want to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field. Options: Enabled and Disabled.
  - **Onboard Serial Port 1 / 2**
    Select an address and corresponding interrupt for the serial port. Options: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.
  - **Onboard Paralellel Port**
    This item allows you to determine the I/O address for onboard parallel port. Options: 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7 and Disabled.
  - **Parallel Port Mode**
    Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require another mode in this field. Options: EPP1.9, ECP, SPP, ECPEPP1.7, EPP1.7.
  - **EPP Mode Select**
    Select EPP port type 1.7 or 1.9.
  - **ECP Mode Use DMA**
    Select a DMA channel for the parallel port while using the

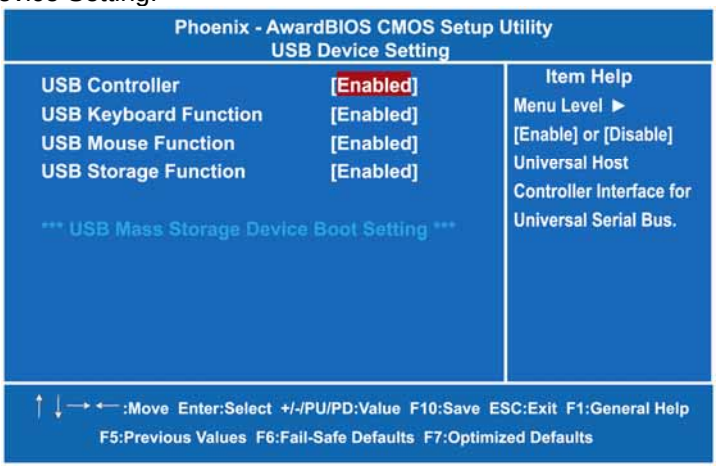
ECP mode.

- **PWRON After PWR-Fail**
  This item enables your computer to automatically restart or return to its operating status.

Press <Esc> to return to the Integrated Peripherals page.

- **USB Device Setting**

  Scroll to this item and press <Enter> to view the sub menu USB Device Setting.


Phoenix - AwardBIOS CMOS Setup Utility
USB Device Setting
USB Controller [Enabled]
USB Keyboard Function [Enabled]
USB Mouse Function [Enabled]
USB Storage Function [Enabled]
*** USB Mass Storage Device Boot Setting ***
Item Help
Menu Level ►
[Enable] or [Disable] Universal Host Controller Interface for Universal Serial Bus.
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Press <Esc> to return to the Integrated Peripherals page.

- **Onboard Lan Boot ROM**
  Use this item to enable or disable the Boot ROM function of the onboard LAN chip when the system boots up.

Press <Esc> twice to return to the Main Menu page.

5.9 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI Function Enabled
ACPI Suspend Type [S3(STR)]
Run VGABIOS if S3 Resume [Auto]
Power Management [User Define]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
Suspend Mode [Disabled]
HDD Power Down [Disabled]
Soft-Off by PWR-BTTN [Instant-Off]
Power On by Ring [Enabled]
** Reload Global Timer Events **
HPET Support [Enabled]
HPET Mode [32-bit mode]
Item Help
Menu Level
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6: Fail-Safe Defaults F7:Optimized Defaults

- **ACPI Function**
  This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The function is always "Enabled".

- **ACPI Suspend Type**
  This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:

  [S1 (POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system contexts.

  [S3 (STR)] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains

powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

- **Run VGABIOS if S3 Resume**
  When this item is set Auto, the system will run VGA BIOS if it is reaumed from the S3 state.

- **Power Management**
  This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. The table below describes each power management mode:

Max Saving	It is maximum power savings, only available for SL CPUs. The inactivity period is 1 minute in each mode.
User Define	It sets each mode. Select time-out periods in the PM Timers section.
Min Saving	It is minimum power savings. The inactivity period is 1 hour in each mode (except the hard drive).
Disabled	Default value

- **Video Off Method**
  This setting determines the manner in which the monitor is blanked.

V/H SYNC+Blank	It turns OFF vertical and horizontal synchronization ports and writes blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the supplied software for your video subsystem to select video power management values.
Blank Screen	The System only writes blanks to the video buffer.

- **Video Off In Suspend**

  This item defines if the video is powered down when the system is put into suspend mode.

- **Suspend Type**

  If this item is set to the default Stop Grant, the CPU will go into Idle Mode during power saving mode.

- **Suspend Mode**
  After the selected period of system inactivity (1 minute to 1 hour),

all devices except the CPU shut off. The default value is *"Disabled"*.

Disabled	System will never enter SUSPEND mode
1/2/4/6/8/10/20/30/40 Min/1 Hr	Defines the continuous idle time before the system entering SUSPEND mode. If any item defined in (J) is enabled & active, SUSPEND timer will be reloaded

- **HDD Power Down**
  If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active.

- **Soft-Off by PWR-BTTN**
  This option only works with systems using an ATX power supply. It also allows users to define which type of soft power OFF sequence the system will follow. The default value is *"Instant-Off"*.

Instant-Off	This option follows the conventional manner of system performance when turning the power to OFF. Instant-Off is a software power OFF sequence requiring the power supply button is switched to OFF.
Delay 4 Sec.	Upon the system's turning OFF through the power switch, this option will delay the complete system power OFF sequence approximately 4 seconds. Within this delay period, the system will temporarily enter into the Suspend Mode enabling you to restart the system at once.

- **Power On by Ring**
  This option allows the system to resume or wake up upon detecting any ring signals coming from an installed modem. The default value is "Enabled".

**** Reload Global Timer Events ****

Global Timer (power management) events can prevent the system from entering a power saving mode or can awaken the system from such a mode.

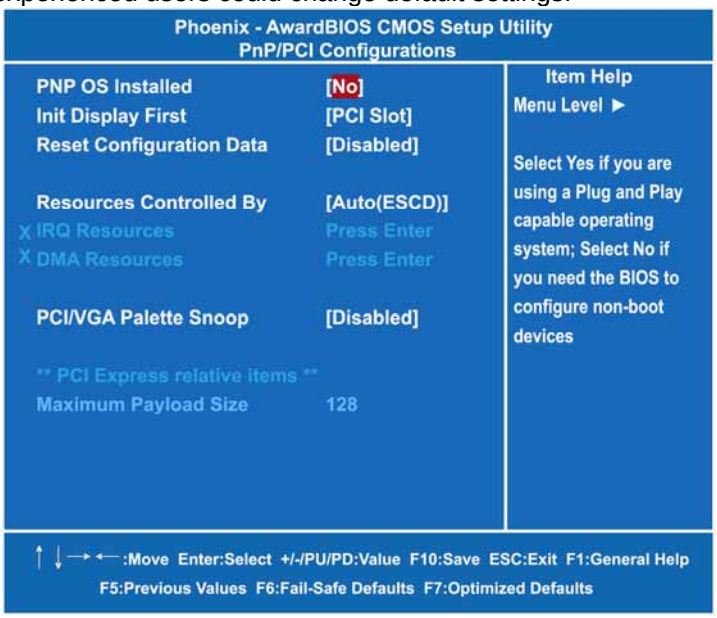
- **HPET Support**
  Use this item to enable or disable HPET (High Precision Event Timer), which is designed to have very fine-grained resolution, fast access times, and support for aperiodic behavior.

- **HPET Mode**
  Use this item to configure the HPET (High Precision Event Timer) mode.

Press <Esc> to return to the Main Menu page.

5.10 PnP/PCI Configuration Setup

This section describes the configuration of PCI (Personal Computer Interconnect) bus system, which allows I/O devices to operate at speeds close to the CPU speed while communicating with other important components. This section covers very technical items that only experienced users could change default settings.


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
PNP OS Installed [No]
Init Display First [PCI Slot]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
X IRQ Resources Press Enter
X DMA Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
** PCI Express relative items **
Maximum Payload Size 128
Item Help
Menu Level ►
Select Yes if you are using a Plug and Play capable operating system; Select No if you need the BIOS to configure non-boot devices
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **PNP OS Installed**
  Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows 95). The default value is "No".
- **Init Display First**
  This item allows you to decide whether PCI Slot or AGP to be the first primary display card.

- **Reset Configuration Data**
  Normally, you leave this item Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if installing a new add-on cause the system reconfiguration a serious conflict that the operating system can not boot. Options: Enabled, Disabled.

- **Resources Controlled By**
  The Award Plug and Play BIOS can automatically configure all boot and Plug and Play-compatible devices. If you select Auto, all interrupt request (IRQ), DMA assignment, and Used DMA fields disappear, as the BIOS automatically assigns them. The default value is *"Manual"*.

- **IRQ Resources**
  When resources are controlled manually, assign each system interrupt to one of the following types in accordance with the type of devices using the interrupt:
  1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).
  2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

  The default value is *"PCI/ISA PnP"*.

- **DMA Resources**
  When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:
  Legcy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel.
  PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.
  The default value is "PCI/ISA PnP".

- **PCI/VGA Palette Snoop**
  Some non-standard VGA display cards may not show colors properly. This item allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card; when disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

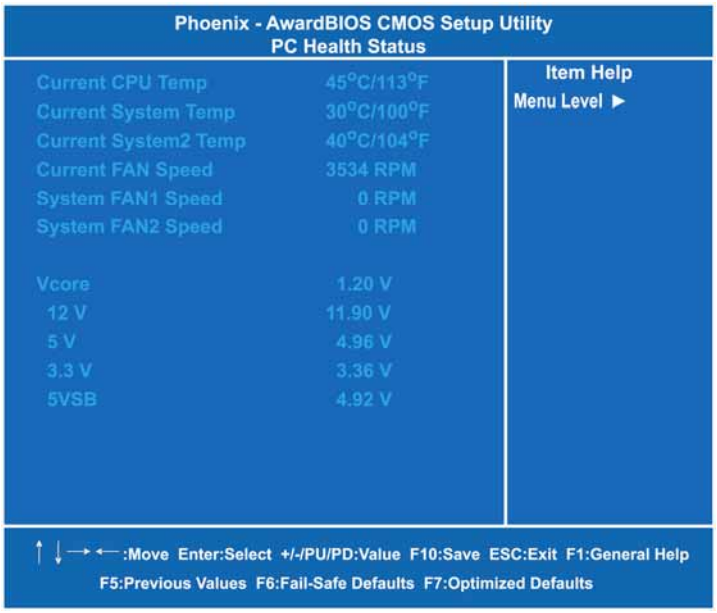
**** PCI Express relative items ****

- **Maximum Payload Size**
  When using DDR SDRAM and Buffer size selection, another consideration in designing a payload memory is the size of the buffer for data storage. Maximum Payload Size defines the maximum TLP (Transaction Layer Packet) data payload size for the device.

Press <Esc> to return to the Main Menu page.

5.11 PC Health Status

This section supports hardware monitering that lets you monitor those parameters for critical voltages, temperatures and fan speed of the board.

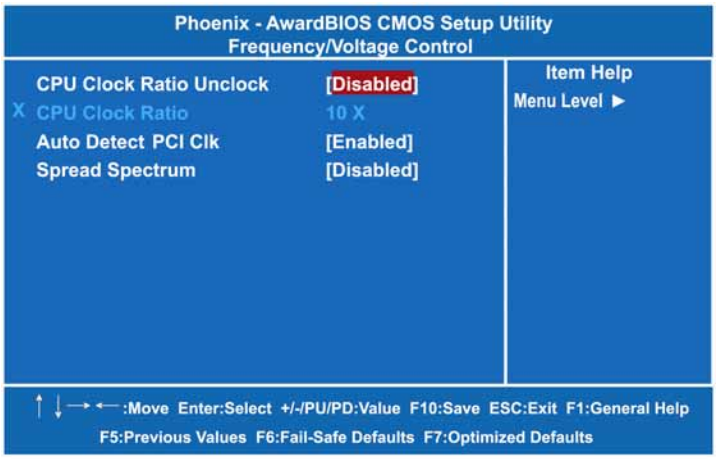

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status
Item Help
Menu Level ►
Current CPU Temp 45°C/113°F
Current System Temp 30°C/100°F
Current System2 Temp 40°C/104°F
Current FAN Speed 3534 RPM
System FAN1 Speed 0 RPM
System FAN2 Speed 0 RPM
Vcore 1.20 V
12 V 11.90 V
5 V 4.96 V
3.3 V 3.36 V
5VSB 4.92 V
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

- **Current CPU Temperature**
  The current system CPU temperature will be automatically detected by the system.
- **Current SYSTEM Temperature**
  Show you the current system1 temperature.

- **CPU FAN Speed**
  These optional and read-only items show current speeds in RPM (Revolution Per Minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.
- **SYSTEM FAN1 Speed**
  Show you the current system fan1 temperature.
- **SYSTEM FAN2 Speed**
  Show you the current system fan1 temperature.
- **Vcore +3.3V/+5V/+12V/5VSB**
  Show you the voltage of +3.3V/+5V/+12V.

Press <Esc> to return to the Main Menu page.

5.12 Frequency/Voltage Control


Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
CPU Clock Ratio Unclock [Disabled]
X CPU Clock Ratio 10 X
Auto Detect PCI Clk [Enabled]
Spread Spectrum [Disabled]
Item Help
Menu Level ►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

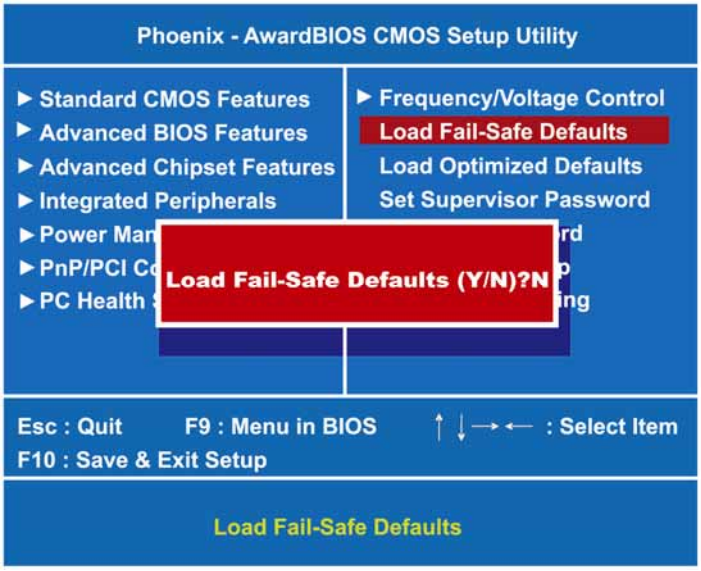
- **CPU Clock Ratio Unlock**
  Use this item to unlock CPU multiplier.
- **CPU Clock Ratio**
  Use this item to select the CPU's frequency.
- **Auto Detect PCI Clk**
  The enabled item can automatically disable the clock source for a PCI slot without a module, to reduce EMI (ElectroMagnetic Interference).

- **Spread Spectrum**
  If spread spectrum is enabled, EMI (ElectroMagnetic Interference) generated by the system can be significantly reduced.

Press <Esc> to return to the Main Menu page.

5.13 Load Fail-Safe Defaults

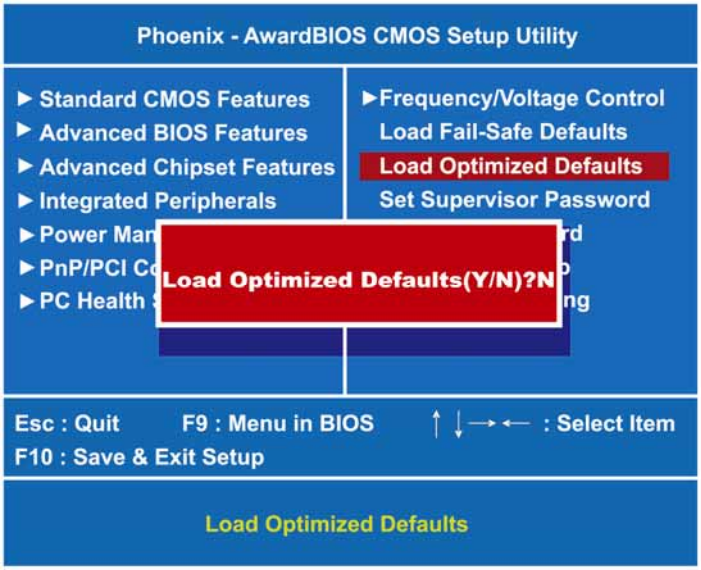
When you press <Enter> on this item, a confirmation dialog box pops out to show you such a message:



Please press "Y" to load default values that will be factory settings for accomplishing the optimal performance of system operations.

5.14 Load Optimized Defaults

This option allows you to load your system configuration with default values. These default settings are optimized to enable high performance features.



To load CMOS SRAM with SETUP default values, please enter "Y". If not, please enter "N".

5.15 Set Supervisor/User Password

You can set a supervisor or user password, or both of them. The differences between them are:

1. **Supervisor password:** You can enter and change the options on the setup menu.
2. **User password:** You can just enter, but have no right to change the options on the setup menu.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type a maximum eight-character password, and press <Enter>. This typed password will clear previously entered password from the CMOS memory. You will be asked to confirm this password. Type this password again and press <Enter>. You may also press <Esc> to abort this selection and not enter a password.

To disable the password, just press <Enter> when you are prompted to enter a password. A message will confirm the password is getting disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED

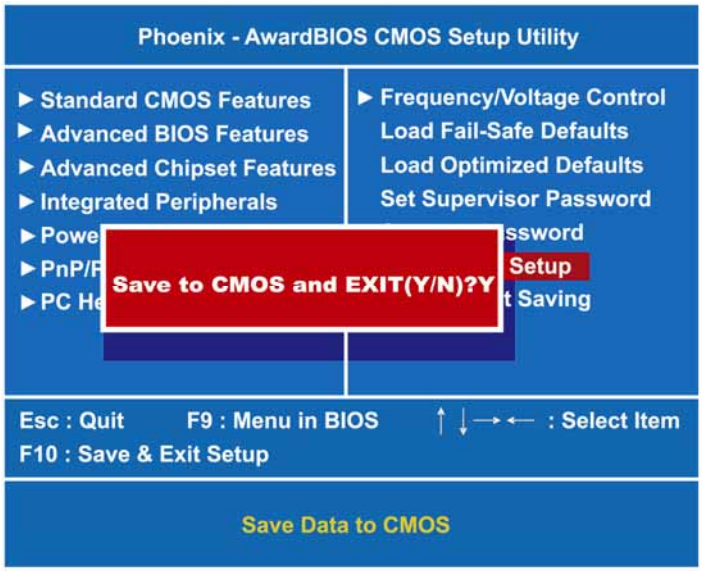
When a password is enabled, you have to type it every time you enter the Setup. It prevents any unauthorized persons from changing your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time the system reboots. This would prevent unauthorized use of your computer.

You decide when the password is required for the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password is required during booting up and entry into the Setup; if it is set as "Setup", a prompt will only appear before entering the Setup.

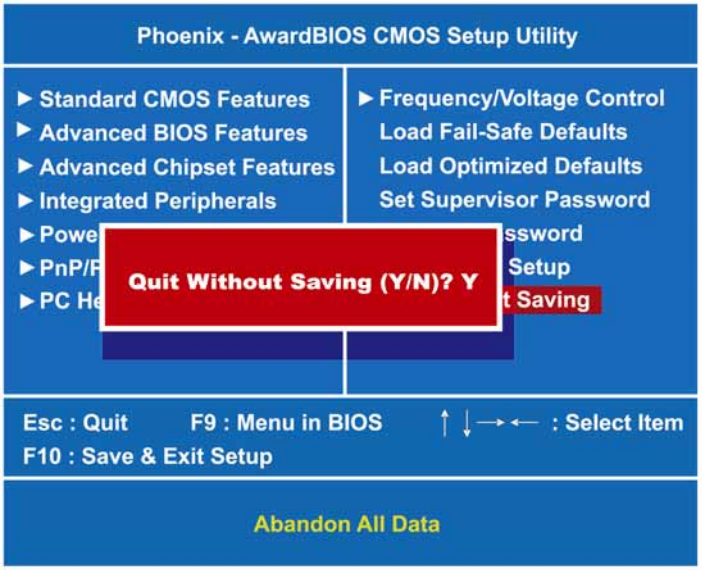
5.16 Save & Exit Setup

This section allows you to determine whether or not to accept your modifications. Type "Y" to quit the setup utility and save all changes into the CMOS memory. Type "N" to bring you back to the Setup utility.



5.17 Exit Without Saving

Select this option to exit the Setup utility without saving changes you have made in this session. Type "Y", and it will quit the Setup utility without saving your modifications. Type "N" to return to the Setup utility.



MEMO

CHPATER 6
INSTALLATION OF DRIVERS

The device drivers are located on the Product Information CD-ROM that comes with the **SHB101 Series** package. The auto-run function of drivers will guide you to install the utilities and device drivers under a Windows system. You can follow the onscreen instructions to install these devices:

- Chipset
- VGA
- LAN

6.1 Installing Chipset Driver

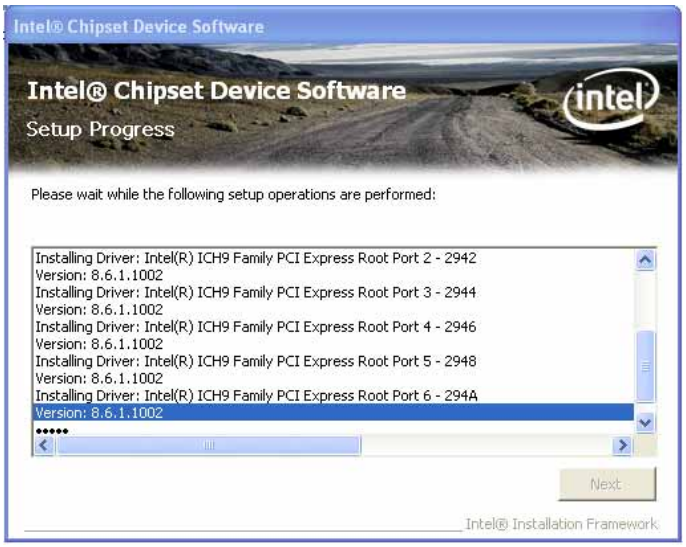
1. Run the SETUP.EXE program from the driver directory in your driver CD. Click "Next" to next step.

Intel® Chipset Device Software
Intel® Chipset Device Software
intel
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

2. An Intel® License Agreement appears to show you the important information. Click "Yes" to next step.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

3. Please wait while running the following setup operations.


Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
intel
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 2 - 2942
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 3 - 2944
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 4 - 2946
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 5 - 2948
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 6 - 294A
Version: 8.6.1.1002
Next
Intel® Installation Framework

(3-1)

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) ICH9 Family USB Universal Host Controller - 2938
Version: 8.3.0.1011
Installing Driver: Intel(R) ICH9 Family USB Universal Host Controller - 2939
Version: 8.3.0.1011
Installing Driver: Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A
Version: 8.3.0.1011
Installing Driver: Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C
Version: 8.3.0.1011
Click Next to continue.
Next
Intel® Installation Framework

(3-2)

4. Click "Finish" to complete the setup process.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

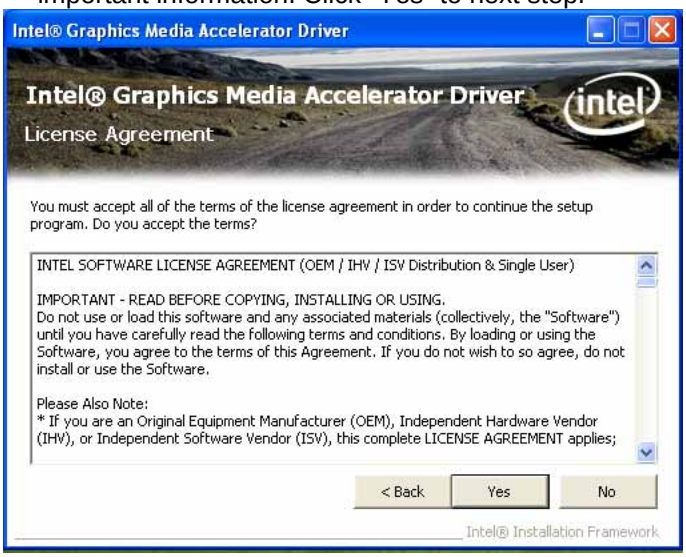
5. You will be asked to reboot your computer when the installation is completed. Please click "Yes, I want to restart my computer now" if you don't need to install any other drivers. Otherwise, please click "No, I will restart my computer later", and go on next step.

6.2 Installing VGA Driver

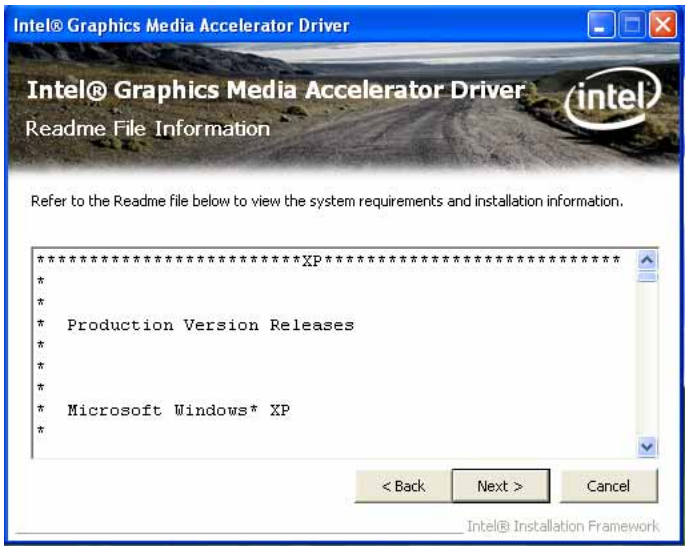
1. Run the SETUP.EXE program from the driver directory in your driver CD. Click "Next" to next step.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
intel
Welcome to the Setup Program
This setup program will install the Intel® Graphics Media Accelerator Driver onto this computer. It is strongly recommended that you exit all programs before continuing. Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

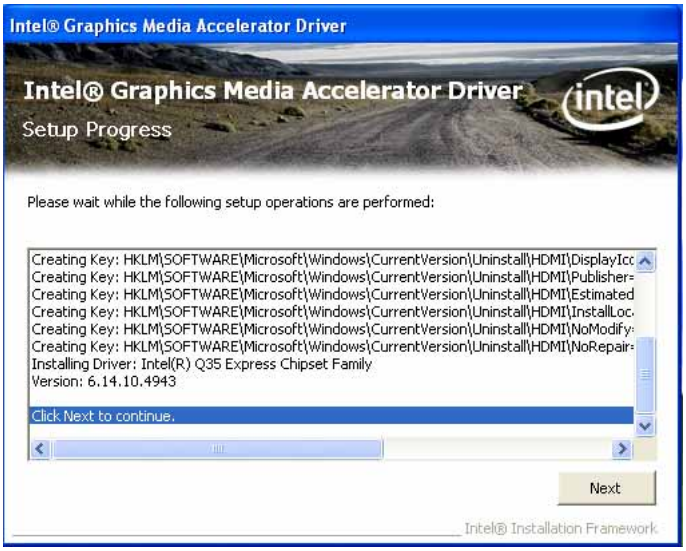
2. An Intel® License Agreement appears to show you the important information. Click "Yes" to next step.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

3. The message of Readme File Information appears to show you the system requirements and installation information. Please click "Next".



4. Please wait while running the following setup operations. When this message appears, please click "Next".



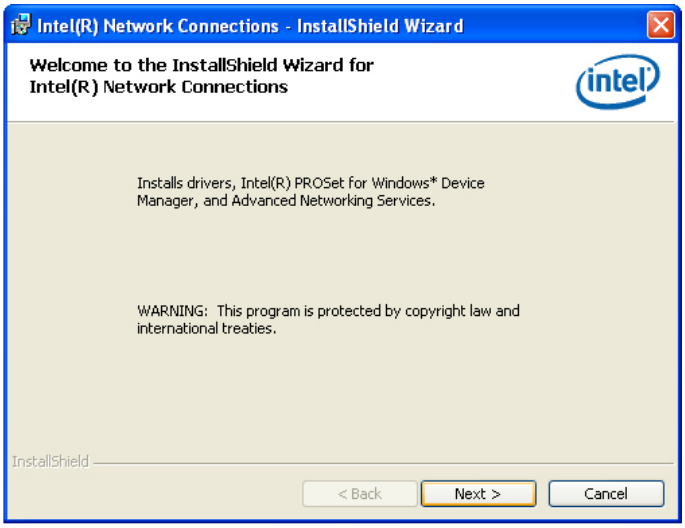
5. Click "Finish" to complete the setup process.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

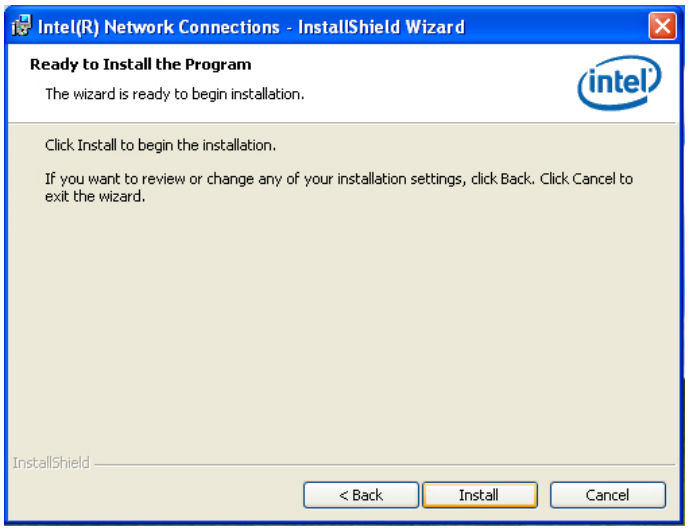
6. You will be asked to reboot your computer when the installation is completed. Please click "Yes, I want to restart my computer now" if you don't need to install any other drivers. Otherwise, please click "No, I will restart my computer later", and click "Finish" to complete the installation.

6.3 Installing LAN Driver

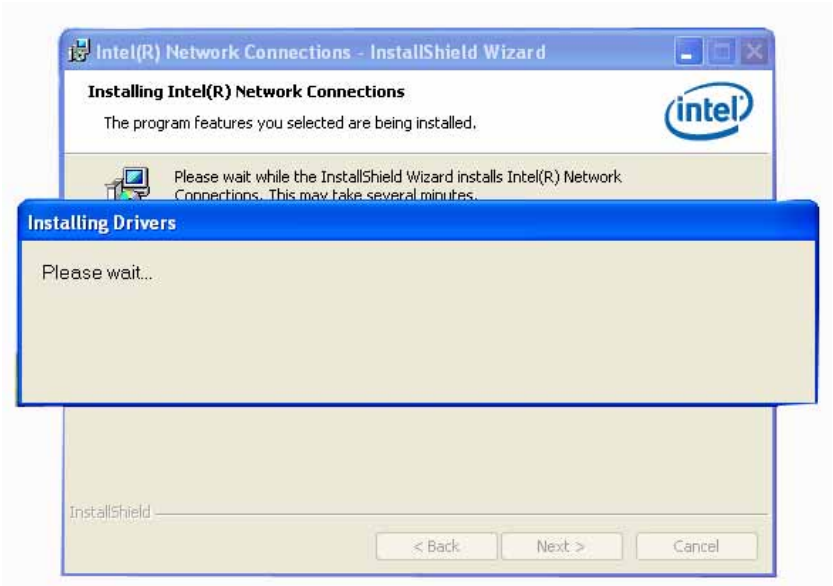
1. Run the InstallShield Wizard for Network Connections from the driver directory in your driver CD. Click "Next" to next step.


Intel(R) Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for Intel(R) Network Connections
intel
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

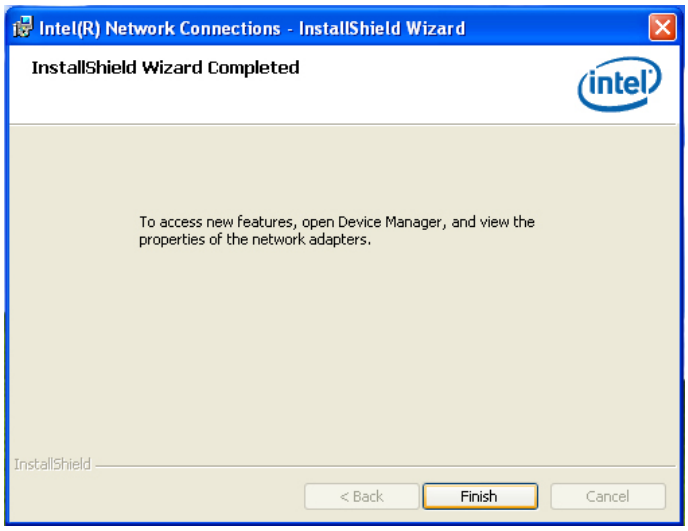
2. Click "Install" to start the installation.


Intel(R) Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

3. Please wait while running the following installation operation.


Intel(R) Network Connections - InstallShield Wizard
Installing Intel(R) Network Connections
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs Intel(R) Network Connections. This may take several minutes.
Installing Drivers
Please wait...
InstallShield
< Back
Next >
Cancel

4. Click "Finish" to complete the installation.



Note *The Driver item [Wake on Directed Packet] default is Enabled under Windows Vista.*

MEMO

APPENDIX A
WATCHDOG TIMER

Watchdog Timer Setting

After the system stops working for a while, it can be auto-reset by the Watchdog Timer. The integrated Watchdog Timer can be set up in the system reset mode by program.

Using the Watchdog Function

Start
↓
Un-Lock WDT
:O 2E 87 ; Un-lock super I/O
O 2E 87 ; Un-lock super I/O
↓
Set WDT Funtion
O 2E 2D
O 2F 20
Select Logic device
O 2E 07
O 2F 08
↓
Activate WDT
:O 2E 30
O 2F 01

Set Second or Minute
O 2E F5
O 2F N N=00 or 08(See below table)
↓
Set base timer
:O 2E F6
O 2F M=00,01,02,…FF(Hex) ,Value=0 to 255
↓
WDT counting

re-set timer **:O 2E F6**
O 2F M ; M=00,01,02,…FF(See below table)

↓

IF No re-set timer **:WDT time-out, generate RESET**

IF to disable WDT **:O 2E 30**
O 2F 00 ; Can be disable at any time

N=00

M= 00h: Time-out Disable
01h: Time-out occurs after 1 second
02h: Time-out occurs after 2 second
03h: Time-out occurs after 3 second
…….....
FFh: Time-out occurs after 255 second

N=08

M= 00h: Time-out Disable
01h: Time-out occurs after 1 minute
02h: Time-out occurs after 2 minutes
03h: Time-out occurs after 3 minutes
…….....

FFh: Time-out occurs after 255 minutes

APPENDIX B
PCI IRQ ROUTING

PICMG PCI IRQ Routing

Device	ID	Slot	Int
PCI Slot 0	31	0	BCDA
PCI Slot 1	30	1	CDAB
PCI Slot 2	29	2	DABC
PCI Slot 3	28	3	ABCD

MEMO

APPENDIX C
CONFIGURING SATA FOR RAID FUNCTION

Configuring SATA Hard Drive(s) for RAID Function (Controller: Intel® ICH9R/DO DH only)

Please follow up the steps below to configure SATA hard drive(s):

(1) Install SATA hard drive(s) in your system.
(2) Enter the BIOS Setup to configure SATA controller mode and boot sequence.
(3) Configure RAID by the RAID BIOS.
(4) Create a floppy disk for the SATA controller driver.
(5) Install the SATA controller driver during the OS installation.

Before you begin the SATA configuration, please prepare:
(a) Two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID with the SATA controller, you may prepare only one hard drive.
(b) An empty formatted floppy disk
(c) Windows XP setup disk

(1) Installing SATA hard drive(s) in your system

Connect one end of the SATA signal cable to the rear of the SATA hard drive, and the other end to available SATA port(s) on the board. Then, connect the power connector of power supply to the hard drive.

(2) Configuring SATA controller mode and boot sequence by the BIOS Setup

You have to make sure whether the SATA controller is configured correctly by system BIOS Setup and set up BIOS boot sequence for the SATA hard drive(s).

(2)-1 Turn on your system and press the Del button to enter BIOS Setup during running POST (Power-On Self Test).

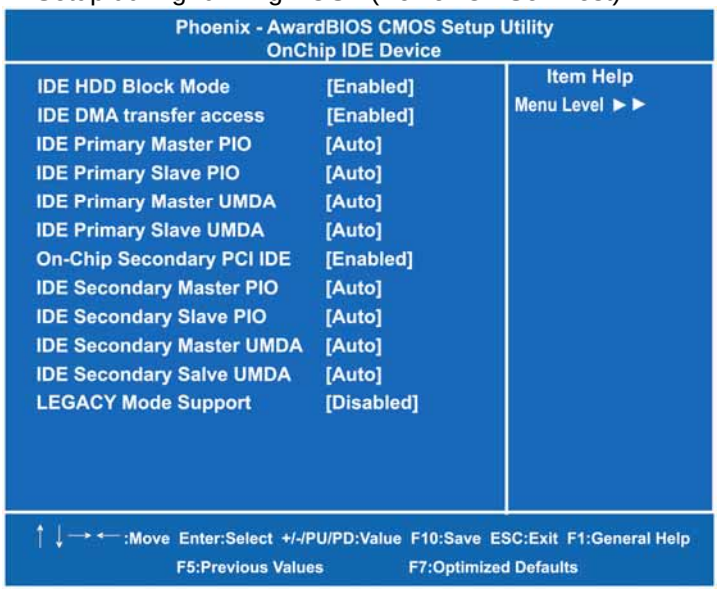

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device
IDE HDD Block Mode [Enabled]
IDE DMA transfer access [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Primary Master UMDA [Auto]
IDE Primary Slave UMDA [Auto]
On-Chip Secondary PCI IDE [Enabled]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Secondary Master UMDA [Auto]
IDE Secondary Salve UMDA [Auto]
LEGACY Mode Support [Disabled]
Item Help
Menu Level ►►
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7:Optimized Defaults

Figure 1

(2)-2 Set **CDROM** for **First Boot Device** under the **Advanced BIOS Features** menu to boot CD-ROM after system restarts (Figure 2).

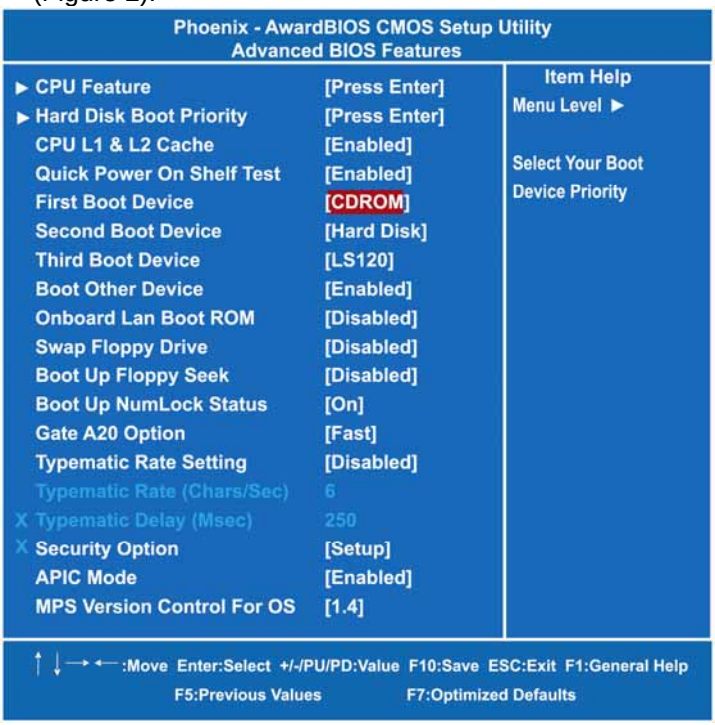

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
▶ CPU Feature [Press Enter]
▶ Hard Disk Boot Priority [Press Enter]
CPU L1 & L2 Cache [Enabled]
Quick Power On Shelf Test [Enabled]
First Boot Device [CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [LS120]
Boot Other Device [Enabled]
Onboard Lan Boot ROM [Disabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Disabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
Typematic Rate (Chars/Sec) 6
X Typematic Delay (Msec) 250
X Security Option [Setup]
APIC Mode [Enabled]
MPS Version Control For OS [1.4]
Item Help
Menu Level ▶
Select Your Boot Device Priority
:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7:Optimized Defaults

Figure 2

(2)-3 Save and exit the BIOS Setup.

(3) Configuring RAID by the RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. Skip this step and proceed to Section 4 if you do not want to create a RAID.

(3)-1 After the POST memory testing and before the operating system booting, a message "*Press <Ctrl-I> to enter Configuration Utility*" (as Figure 3) shows up, accordingly, press <CTRL+ I> to enter the RAID BIOS setup utility.

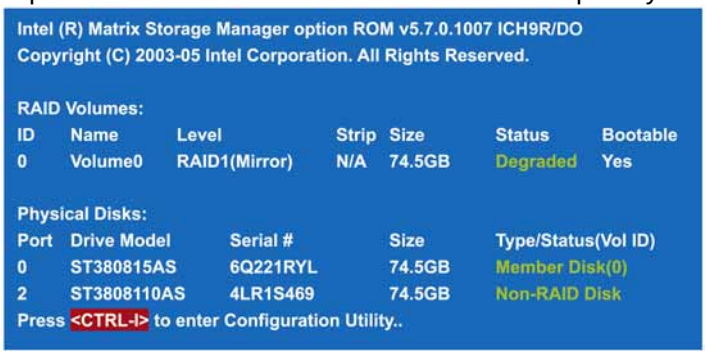

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID1(Mirror) N/A 74.5GB Degraded Yes
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
0 ST380815AS 6Q221RYL 74.5GB Member Disk(0)
2 ST3808110AS 4LR1S469 74.5GB Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility..

Figure 3

(3)-2 After you press <CTRL+ I>, the **Create RAID Volume** screen will appear (as Figure 4). If you want to create a RAID array, select the **Create RAID Volume** option in the Main Menu and press ENTER.

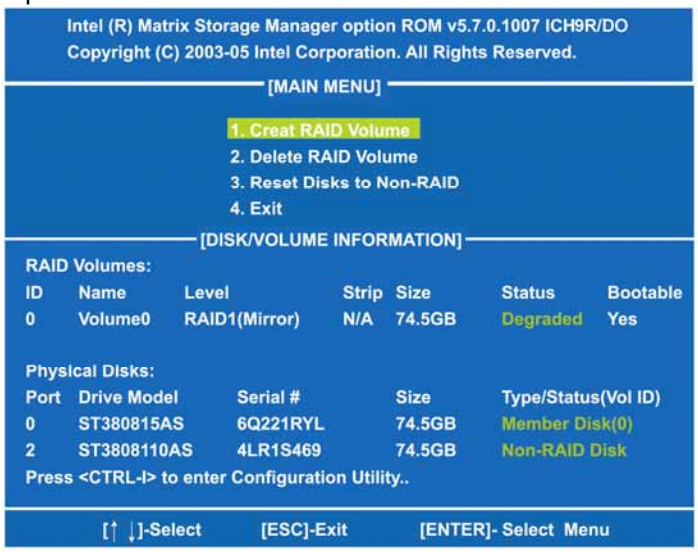

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Creat RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID1(Mirror) N/A 74.5GB Degraded Yes
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
0 ST380815AS 6Q221RYL 74.5GB Member Disk(0)
2 ST3808110AS 4LR1S469 74.5GB Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility..
[↑ ↓]-Select [ESC]-Exit [ENTER]- Select Menu

Figure 4

(3)-3 After entering the **CREAT VOLUME MENU** screen, you can type the disk array name with 1~16 letters (letters cannot be special characters) in the item "Name". When finished, press ENTER to select a RAID level (as Figure 5). There are three RAID levels, RAID0, RAID1 and RAID5&RAID10. Select a RAID level and press ENTER.

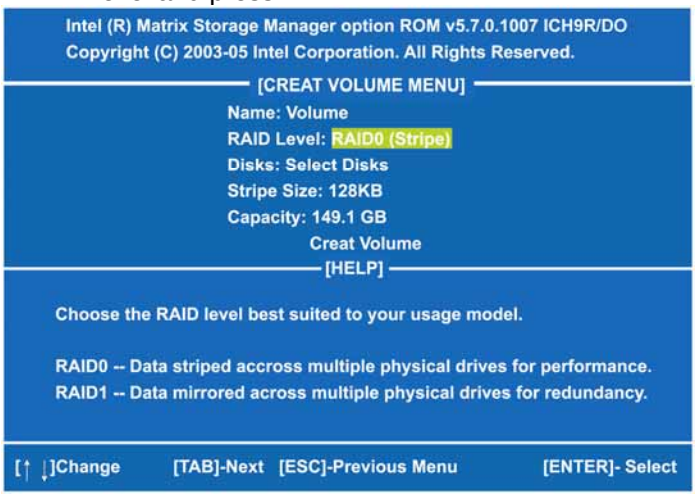

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[CREAT VOLUME MENU]
Name: Volume
RAID Level: RAID0 (Stripe)
Disks: Select Disks
Stripe Size: 128KB
Capacity: 149.1 GB
Creat Volume
[HELP]
Choose the RAID level best suited to your usage model.
RAID0 -- Data striped accross multiple physical drives for performance.
RAID1 -- Data mirrored across multiple physical drives for redundancy.
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]- Select

Figure 5

(3)-4 Set the stripe block size (as Figure 6). The *KB* is the standard unit of stripe block size. The stripe block size can be 4KB to 128KB. After the setting, press ENTER for the array capacity.

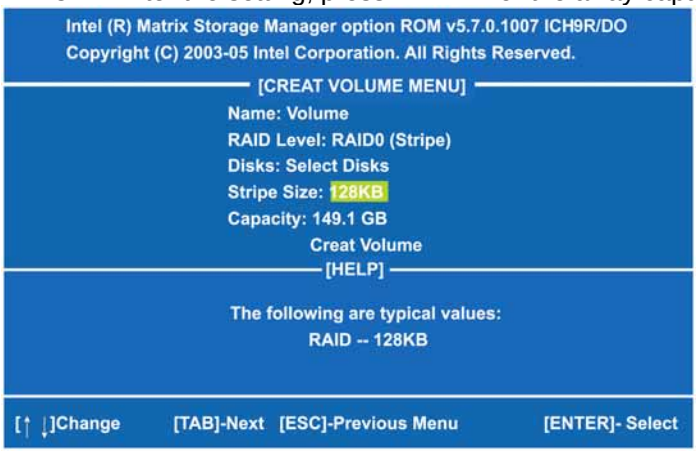

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[CREAT VOLUME MENU]
Name: Volume
RAID Level: RAID0 (Stripe)
Disks: Select Disks
Stripe Size: 128KB
Capacity: 149.1 GB
Creat Volume
[HELP]
The following are typical values:
RAID -- 128KB
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]- Select

Figure 6

(3)-5 After setting all the items on the menu, select **Create Volume** and press ENTER (as Figure 7) to start creating the RAID array.

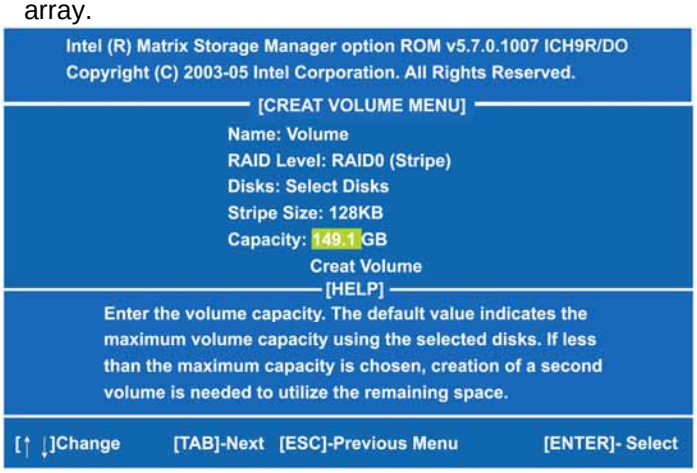

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[CREAT VOLUME MENU]
Name: Volume
RAID Level: RAID0 (Stripe)
Disks: Select Disks
Stripe Size: 128KB
Capacity: 149.1 GB
Creat Volume
[HELP]
Enter the volume capacity. The default value indicates the maximum volume capacity using the selected disks. If less than the maximum capacity is chosen, creation of a second volume is needed to utilize the remaining space.
[↑ ↓]Change
[TAB]-Next
[ESC]-Previous Menu
[ENTER]- Select

Figure 7

(3)-6 When prompting the confirmation, press "*Y*" to create this volume, or "*N*" to cancel the creation.

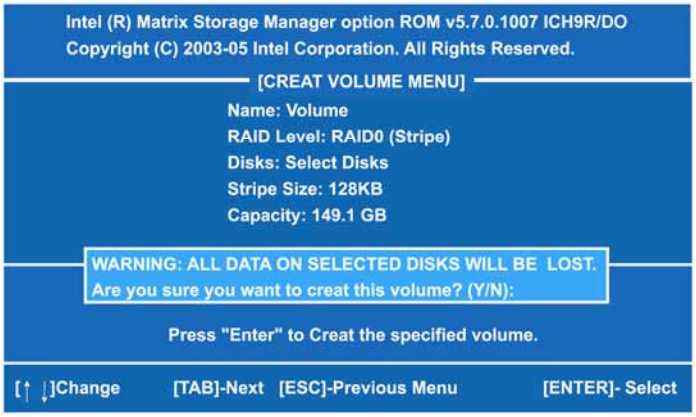

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[CREAT VOLUME MENU]
Name: Volume
RAID Level: RAID0 (Stripe)
Disks: Select Disks
Stripe Size: 128KB
Capacity: 149.1 GB
WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.
Are you sure you want to creat this volume? (Y/N):
Press "Enter" to Creat the specified volume.
[↑ ↓]Change
[TAB]-Next
[ESC]-Previous Menu
[ENTER]- Select

Figure 8

After the creation is completed, you can see detailed information about the RAID Array in the DISK/VOLUME INFORMATION section, including RAID mode, disk block size, disk name, and disk capacity, etc.

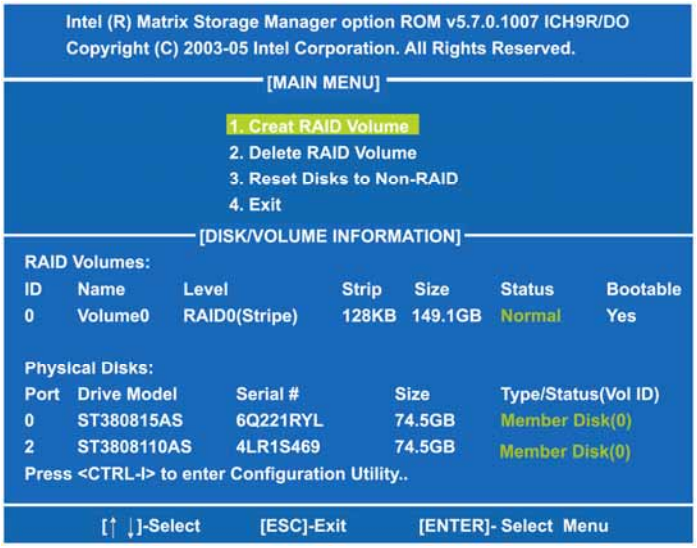

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Creat RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID0(Stripe) 128KB 149.1GB Normal Yes
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
0 ST380815AS 6Q221RYL 74.5GB Member Disk(0)
2 ST3808110AS 4LR1S469 74.5GB Member Disk(0)
Press <CTRL-I> to enter Configuration Utility..
[↑ ↓]-Select [ESC]-Exit [ENTER]- Select Menu

Figure 9

Delete RAID Volume

If you want to delete a RAID volume, select the **Delete RAID Volume** option in Main Menu. Press ENTER and follow on-screen instructions.

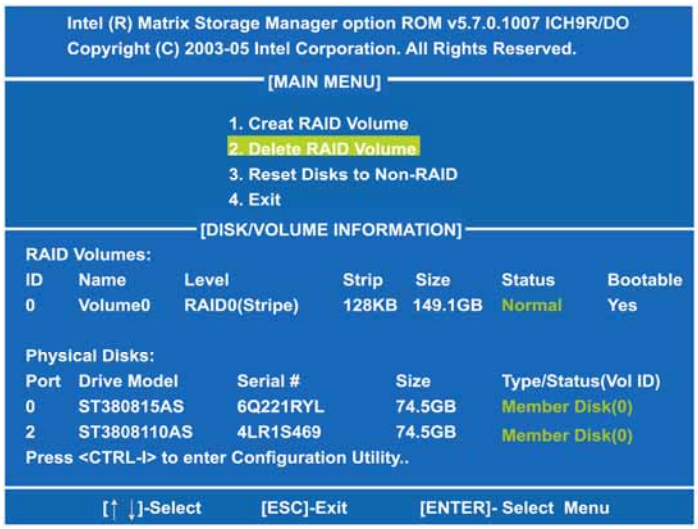

Intel (R) Matrix Storage Manager option ROM v5.7.0.1007 ICH9R/DO
Copyright (C) 2003-05 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Creat RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
ID Name Level Strip Size Status Bootable
0 Volume0 RAID0(Stripe) 128KB 149.1GB Normal Yes
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
0 ST380815AS 6Q221RYL 74.5GB Member Disk(0)
2 ST3808110AS 4LR1S469 74.5GB Member Disk(0)
Press <CTRL-I> to enter Configuration Utility..
[↑ ↓]-Select [ESC]-Exit [ENTER]- Select Menu

Figure 10

Please press [ESC] to exit theICH9R RAID BIOS utility.

Now, you can proceed to install a SATA driver controller and the operating system.

(4) Making a SATA Driver Disk

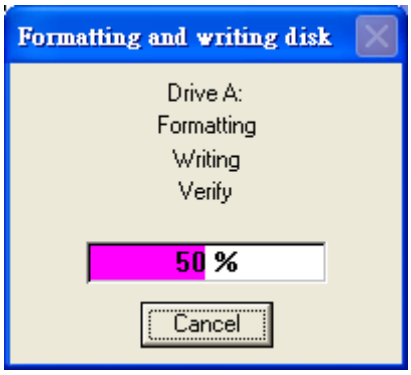
To install the operating system onto a serial ATA hard disk successfully, you need to install the SATA controller driver during the OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process. First of all, please format a blank floppy disk. Secondly, follow up these steps below to produce a SATA driver disk.

(4)-1 Users can insert the Driver CD and the formatted blank floppy disk in another system. And then, please execute the f6flpy32.exe file in the folder of the Driver CD.

Note *Please execute the f6flpy64.exe file, if installing 64-bit Windows Operating System.*

(4)-2 When this screen pops out, please click the "**CONFIRM**" button.

(4)-3 When the RAID Driver is written to the floppy disk, the SATA driver disk is completed.



Note *Please execute the f6flpy64.exe file, if installing 64-bit Windows Operating System.*

(5) Installing the SATA controller driver during the OS installation
Now, the SATA driver disk is ready, and BIOS settings configured, you can proceed to install Windows 2000/XP onto your SATA hard drive using the SATA driver. Here is an example for Windows XP installation.

(5)-1 Restart your system to boot the Windows 2000/XP Setup disk, and press F6 butoon button as soon as you see the message "*Press F6 if you need to install a 3rd party SCSI or RAID driver*" (as Figure 11). After pressing the F6 button, there will be a few moments for some files being loaded before next screen appears.

Figure 11

(5)-2 When you see the screen below, insert the floppy disk containing the SATA driver and press "*S*" (as Figure 12).

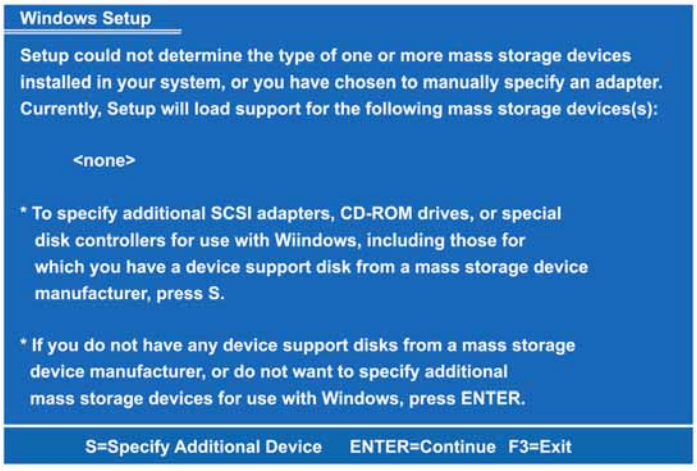

Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Wiindows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

Figure 12

(5)-3 If the Setup correctly recognizes the driver of the floppy disk, a controller menu (as Figure 13) will appear below. Use the ARROW keys to select **Intel(R) 82801IR/ IHO SATA RAID Controller** and press ENTER**.** Then it will begin to load the SATA driver from the floppy disk.

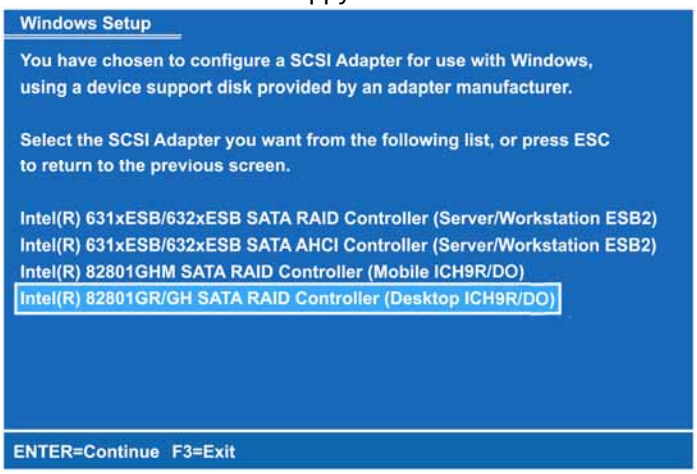

Windows Setup
You have chosen to configure a SCSI Adapter for use with Windows, using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.
Intel(R) 631xESB/632xESB SATA RAID Controller (Server/Workstation ESB2)
Intel(R) 631xESB/632xESB SATA AHCI Controller (Server/Workstation ESB2)
Intel(R) 82801GHM SATA RAID Controller (Mobile ICH9R/DO)
Intel(R) 82801GR/GH SATA RAID Controller (Desktop ICH9R/DO)
ENTER=Continue F3=Exit

Figure 13

Note *If a message on the screen saying that one or some file(s) cannot be found, please check the floppy disk or copy the correct SATA driver again from the driver CD.*

APPENDIX D
PICMG v1.3 INTERFACE DEFINITION

x16 PCIe Connector A			x16 PCIe Connector C		
	Side B	Side A		Side B	Side A
1	N.C	N.C	1	USB0P	GND
2	GND	GND	2	USB0N	GND
3	N.C	N.C	3	GND	USB1P
4	N.C	N.C	4	GND	USB1N
5	N.C	WAKE#	5	USB2P	GND
6	PWRBT#	PME#	6	USB2N	GND
7	PWRGD	PSON#	7	GND	USB3P
8	SHB_RST#	PERST#	8	GND	USB3N
9	CFG0	CFG1	9	USBOC0#	GND
10	CFG2	CFG3	10	GND	USBOC1#
11	RSVD	GND	11	USBOC2#	GND
Mechanical Key					
12	GND	N.C	12	GND	USBOC3#
13	b_PETp0	GND	13	N.C	GND
14	b_PETn0	GND	14	N.C	GND
15	GND	b_PERp0	15	GND	N.C
16	GND	b_PERn0	16	GND	N.C
17	b_PETp1	GND	17	N.C	GND
18	b_PETn1	GND	18	N.C	GND
19	GND	b_PERp1	19	GND	N.C
20	GND	b_PERn1	20	GND	N.C
21	b_PETp2	GND	21	N.C	GND
22	b_PETn2	GND	22	N.C	GND
23	GND	b_PERp2	23	GND	N.C
24	GND	b_PERn2	24	GND	N.C
25	b_PETp3	GND	25	N.C	GND
26	b_PETn3	GND	26	N.C	GND
27	GND	b_PERp3	27	GND	N.C
28	GND	b_PERn3	28	GND	N.C
29	REFCLK0+	GND	29	N.C	GND
30	REFCLK0-	GND	30	N.C	GND

Mechanical Key					
31	GND	REFCLK1+	31	N.C	N.C
32	RSVD	REFCLK1-	32	N.C	N.C
33	REFCLK2+	GND	33	N.C	N.C
34	REFCLK2-	GND	34	N.C	GND
35	GND	REFCLK3+	35	N.C	GND
36	RSVD	REFCLK3-	36	GND	N.C
37	REFCLK4+	GND	37	GND	N.C
38	REFCLK4-	GND	38	N.C	GND
39	GND	N.C	39	N.C	GND
40	RSVD	N.C	40	GND	N.C
41	N.C	GND	41	GND	N.C
42	N.C	GND	42	+3.3V	+3.3V
43	GND	N.C	43	+3.3V	+3.3V
44	GND	N.C	44	+3.3V	+3.3V
45	a_PETp0	GND	45	+3.3V	+3.3V
46	a_PETn0	GND	46	+3.3V	+3.3V
47	GND	a_PERp0	47	+3.3V	+3.3V
48	GND	a_PERn0	48	+3.3V	+3.3V
49	a_PETp1	GND	49	+3.3V	+3.3V
50	a_PETn1	GND	50	+3.3V	+3.3V
51	GND	a_PERp1	51	GND	GND
52	GND	a_PERn1	52	GND	GND
53	a_PETp2	GND	53	GND	GND
54	a_PETn2	GND	54	GND	GND
55	GND	a_PERp2	55	GND	GND
56	GND	a_PERn2	56	GND	GND
57	a_PETp3	GND	57	GND	GND
58	a_PETn3	GND	58	GND	GND
59	GND	a_PERp3	59	+5V	+5V
60	GND	a_PERn3	60	+5V	+5V
61	a_PETp4	GND	61	+5V	+5V
62	a_PETn4	GND	62	+5V	+5V
63	GND	a_PERp4	63	GND	GND
64	GND	a_PERn4	64	GND	GND
65	a_PETp5	GND	65	GND	GND
66	a_PETn5	GND	66	GND	GND
67	GND	a_PERp5	67	GND	GND
68	GND	a_PERn5	68	GND	GND

Mechanical Key					
69	a_PETp6	GND	69	GND	GND
70	a_PETn6	GND	70	GND	GND
71	GND	a_PERp6	71	GND	GND
72	GND	a_PERn6	72	GND	GND
73	a_PETp7	GND	73	+12V	+12V
74	a_PETn7	GND	74	+12V	+12V
75	GND	a_PERp7	75	+12V	+12V
76	GND	a_PERn7	76	+12V	+12V
77	N.C	GND	77	+12V	+12V
78	+3.3V	+3.3V	78	+12V	+12V
79	+3.3V	+3.3V	79	+12V	+12V
80	+3.3V	+3.3V	80	+12V	+12V
81	+3.3V	+3.3V	81	+12V	+12V
82	RSVD	RSVD	82	+12V	+12V
X8 PCIe Connector B			**X8 PCIe Connector D**		
	Side B	**Side A**		**Side B**	**Side A**
1	+5Vaux	+5Vaux	1	INTB#	INTA#
2	GND	N.C	2	INTD#	INTC#
3	a_PETp8	GND	3	GND	N.C
4	a_PETn8	GND	4	REQ3#	GNT3#
5	GND	a_PERp8	5	REQ2#	GNT2#
6	GND	a_PERn8	6	PCI_RST#	GNT1#
7	a_PETp9	GND	7	REQ1#	GNT0#
8	a_PETn9	GND	8	REQ0#	SERR#
9	GND	a_PERp9	9	N.C	+3.3V
10	GND	a_PERn9	10	GND	N.C
11	N.C	GND	11	N.C	GND
Mechanical Key					
12	GND	N.C	12	CLKC	CLKD
13	a_PETp10	GND	13	GND	+3.3V
14	a_PETn10	GND	14	CLKA	CLKB
15	GND	a_PERp10	15	+3.3V	GND
16	GND	a_PERn10	16	AD31	GND
17	a_PETp11	GND	17	AD29	+3.3V
18	a_PETn11	GND	18	N.C	AD30
19	GND	a_PERp11	19	AD27	AD28
20	GND	a_PERn11	20	AD25	GND
21	a_PETp12	GND	21	GND	AD26

Mechanical Key					
22	a_PETn12	GND	22	C/BE3#	AD24
23	GND	a_PERp12	23	AD23	+3.3V
24	GND	a_PERn12	24	GND	AD22
25	a_PETp13	GND	25	AD21	AD20
26	a_PETn13	GND	26	AD19	N.C
27	GND	a_PERp13	27	+5V	AD18
28	GND	a_PERn13	28	AD17	AD16
29	a_PETp14	GND	29	C/BE2#	GND
30	a_PETn14	GND	30	PCI_PRST#	FRAME#
31	GND	a_PERp14	31	IRDY#	TRDY#
32	GND	a_PERn14	32	DEVSEL#	+5V
33	a_PETp15	GND	33	LOCK#	STOP#
34	a_PETn15	GND	34	PERR#	GND
35	GND	a_PERp15	35	GND	C/BE1#
36	GND	a_PERn15	36	PAR	AD14
37	N.C	GND	37	N.C	GND
38	N.C	N.C	38	GND	AD12
39	GND	GND	39	AD15	AD10
40	GND	GND	40	AD13	GND
41	GND	GND	41	GND	AD09
42	GND	GND	42	AD11	C/BE0#
43	GND	GND	43	AD08	GND
44	+12V	+12V	44	GND	AD06
45	+12V	+12V	45	AD07	AD05
46	+12V	+12V	46	AD04	GND
47	+12V	+12V	47	GND	AD02
48	+12V	+12V	48	AD03	AD01
49	+12V	+12V	49	AD00	GND

Note *Please contact your vendor to get the backplane design guide if it's required. The backplane design guide is NDA required.*